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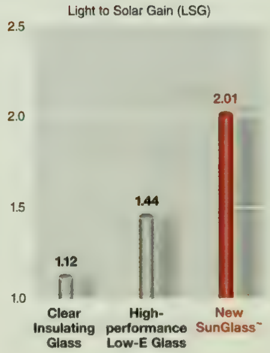

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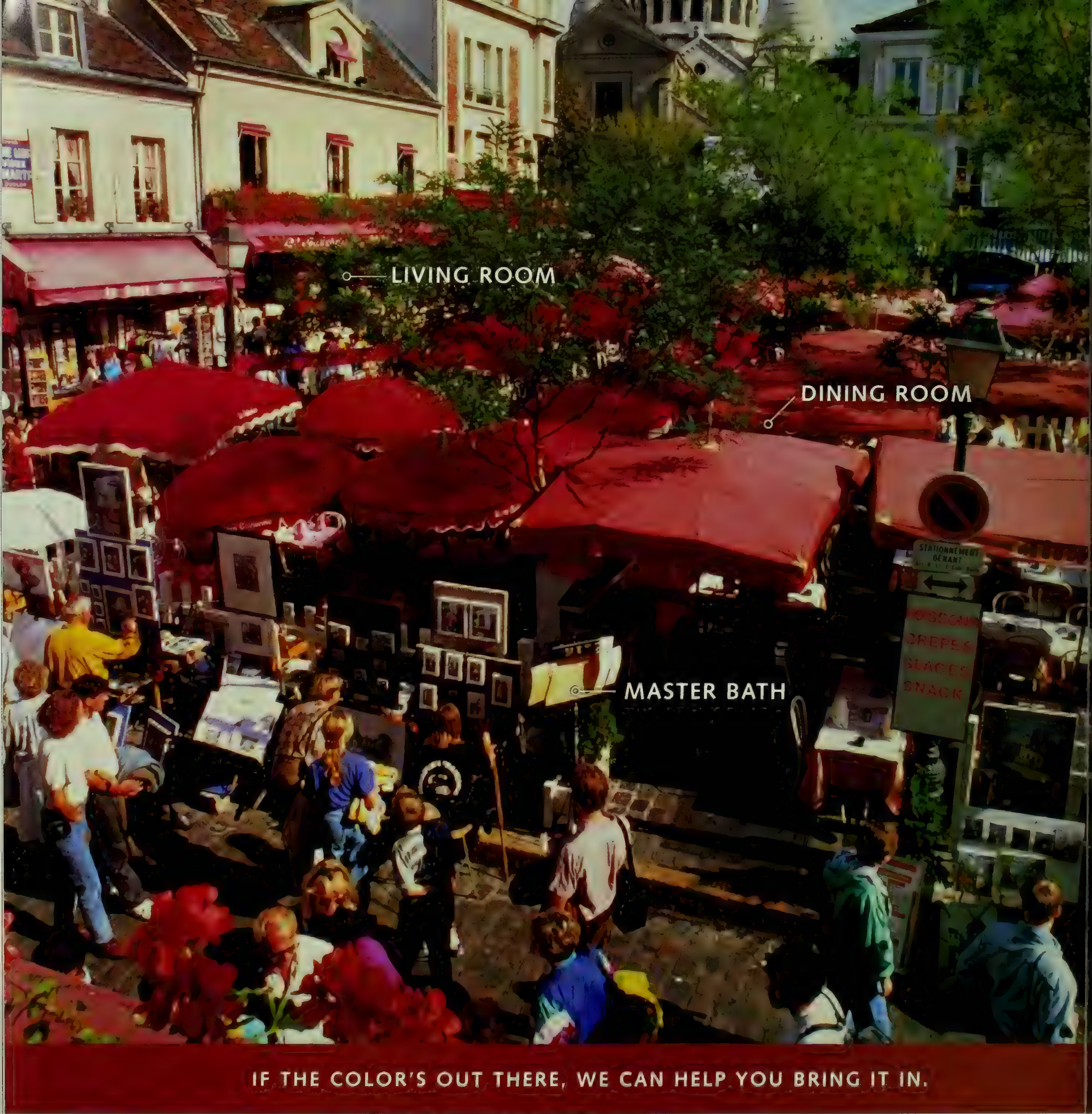

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Right: *La Maison Unique Longchamp, by Heatherwick Studio. Photograph by Nic Lehoux.*

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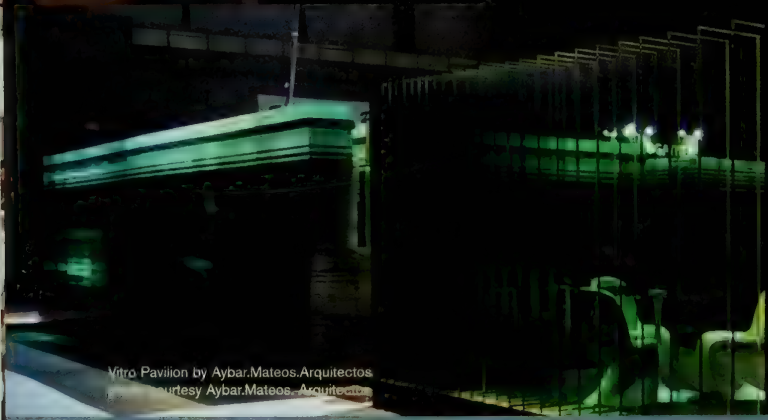
Morimoto by Tadao Ando, photo © Susannah Shepherd



Vitro Pavilion by Aybar.Mateos.Arquitectos
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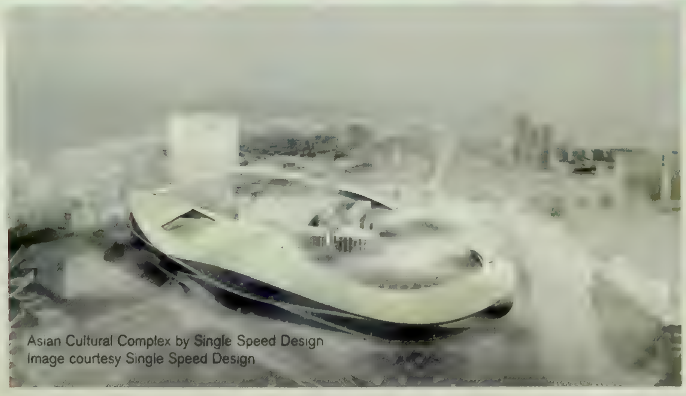

Asian Cultural Complex by Single Speed Design
Image courtesy Single Speed Design

Archrecord2

The emerging architects featured in this month's archrecord2 are living for ideals–and setting the highest of standards for their work. Examples? SsD's house almost completely constructed of discarded materials from Boston's Big Dig, and Trevor Pan's two-year labor of love, 3 Desert Way. Visit www.archrecord.com/archrecord2/ for more.

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House of the Month

Built with green principles in place from openings to envelope, this architect's home in Newport Beach, California uses pocket doors to bring the outside in or keep it out depending on the climate.

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What We Have Learned

Editorial

By Robert Ivy, FAIA

The sight of thousands of passengers in the long lines at Heathrow Airport, JFK, and LAX, snaking through the arrival halls or waiting patiently outdoors in rain slickers on August 10 produced a familiar kind of dread mixed with acceptance: Since September 11, 2001, our world has irrevocably changed. In assessing the implications of the attacks on the World Trade Center and the Pentagon, we find that—besides the discussions and plans for the affected sites and their memorials, and our new awareness of the elevation of architecture in the popular consciousness—the aftermath of those events has provoked spirited debate and sometimes transformation in the built world. Five years later, we ask, have we in fact progressed toward safer, healthier spaces?

To judge from the expressions on the faces of the waiting public in the airports, not much. Despite massive investment in airport security, including computerized baggage screening, various metal and trace explosive detectors, surveillance and perimeter intrusion systems, we still have no effective way of pinpointing liquid, peroxide-based explosives in our airports. So-called "puffer" technology, which emits bursts of air to find explosive traces on clothing, comes at a high price and takes up more precious space. Nor do we have guarantees that terrorists would not find other ways of slipping through the permeable borders that airline terminals, not to mention rail centers and ports, represent.

With all our investments and all our cleverness at tightening things up, we remain vulnerable. Aviation Week *and* Space Technology *recently reported that if the perpetrators of the recent airline plot in Britain had managed to secrete the liquid materials among their possessions, they might well have slipped through security and boarded their intended flights. Another new gadget might have helped, but there is no guarantee.*

As a culture, we have relied on technology to solve problems sometimes better solved by people. Investigators, real people using human intelligence, not electronics, cracked open the plot, exposing the intentions of more than 20 persons to blow up planes of four different airlines before they set foot in an airport or entered the area we call "security."

What can we learn from these experiences, and how can we architects make a difference? The shift in tactics by a dangerous few has implications for architects worth considering. First, the dynamics of security in the post-9/11 world requires nimbleness of response. Yesterday's norm, a bottle purchased in a duty-free shop, becomes tomorrow's incendiary device. Marilyn Jordan Taylor, FAIA, who has led major terminal design teams at Skidmore, Owings & Merrill, places the burden on design professionals not only to "understand operations and security" at airports, but also "to provide acceptable, understandable experiences for passengers." If others control security, architects control the experience, she postulates.

In a world with increasing surveillance, a world that sometimes feels as inescapable as the terminal in Steven Spielberg's film of that name, we may face other days similar to August 10, despite our collective efforts. Will architects have provided pleasant places for queuing? Places of rest or peace in the hubbub? Opportunities for the elderly or the weary to sit? Changes in lighting levels, in perspectives, in coloration? While we will inevitably require chokepoints for maximum scrutiny, can we also provide comfort, settings that minimize fear and maximize our awareness of personal space and of individual self-control? And what to make of cell-phone-infested waiting areas?

For those relatively few architects tasked with upgrading existing terminals or building new ones, we can segregate movement systems in a way that effectively separates cars and people, that minimizes feelings of anxiety caused by crowding, and that still gives us a sense of arrival and possibility that travel suggests. Airports, like the rail terminals that preceded them, remain primary points of embarkation and arrival, now stretched to the global scale.

What have we learned in five years? Machines may give us the illusion that we are actively solving the security problem, but the human mind, the most remarkable machine, deserves our full attention as architects. While we may not be security experts, shaping the character of human behavior in public space lies squarely within our hands, an ability undetectable on anyone's screening system.

Robert Ivy

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Letters

Lasting words

I can't begin to tell you how profound I found Robert Ivy's editorial, "The Essence of Education" [July 2006, page 17]. I was in attendance at William McDonough's talk on the last day of the AIA convention in Los Angeles, awaiting his closing words of inspiration. Ivy's "capture" of Bill McMinn's memorable event is an inspiration in itself. Thank you.

—William R. Freimuth, AIA
Farmington, N.Mex.

Another "Aha!"

Walking on Roman streets, Bill McMinn always talked about what he referred to as an "aha moment": the instantaneous, immortal, and sublime recognition of an architectural discovery. For us, the real superb event was to see him become renewed through our own novice experiences. An initial thank you for honoring once again his dedication and commitment in your pages, and a second for letting a former student pay yet another humble respect.

—Javier Galindo
Via e-mail

Private business

I am writing in response to Robert Ivy's August editorial, "Five Distinct Dramas" [page 17]. To suggest that a government agency (or government anything) is the answer to the Gulf region's current challenges is a fundamental and disgraceful absurdity.

The government's records of achievement around anything related to Katrina have been and are deplorable. From an incompetent mayor to a bumbling and inept governor to bloated federal agencies—the government has failed at every level. The only bigger failure is the failure of individuals to accept their responsibility to rebuild in a prudent manner. Far too many of those who could act in your drama scenarios cling to editorials such as yours and stick out their hands for the proverbial "free lunch." Some, unfortunately, willingly abdicate their own good judgment.

The fundamental premise as well as the logic of Ivy's editorial is flawed. He notes that FEMA is not performing well, yet just a few paragraphs later suggests that a new government agency is worthy of consideration. What makes him think "things will be different this time around?" Furthermore, while he notes that his analogy of the Depression and the TVA "is clear," I found the context foggy and inappropriate.

Ivy will better serve his readers by noting that these challenges can and should be met by the private sector. The most effective and reliable approach is based on individual and local responsibility, combined with the prudent employment of qualified private-sector planners, designers, and builders.

—Scott Braley
Atlanta, Ga.

Bravo

EXCELLENT editorial on "Five Distinct Dramas." Thank you.

—Frank Bruckner
Asheville, N.C.

Some like it hot

In your August feature, "Big Ideas for a Little Planet" [page 61], Mattias Schuler states in his interview that in New York, buildings are cooled to 68 degrees F in the summer and warmed to 80 degrees F in the winter. "This is ridiculous," he says. "It should be heated to 68 degrees in winter and cooled to 80 in the summer." Schuler might not be aware that New York law requires residential buildings to be heated to 68 degrees in winter between the hours of 6 A.M. and 10 P.M. and to 55 degrees between 10 and 6. As for cooling in the summer, perhaps we should emulate the European approach of grin and bear it, despite the increasing number of deaths that have occurred during recent heat waves.

—Eugene Brodsky
New York City

The whole picture

Looking over the 10 years of the AIA Top Ten projects [August 2006, Record News, "2006 COTE winners reflect green trends," page 30], I'm gratified to see that architects and design teams are moving past a focus on individual categories such as energy efficiency, material selection, and indoor air quality. They are now beginning to glimpse and express the interconnectedness of the whole. To ensure the efficacy of their actions, they are placing a high value on data collection and are more ready to share lessons learned with others.

But there are ways to bring an even greener future within our reach; by long-term collaborative visioning and action—by using effective metrics of improvement (the parts) and by embracing holistic design approaches (the whole). For example, effective energy metrics, such as EPA's Target Finder, added to the AIA Top Ten criteria and to USGBC's LEED for Existing Buildings, is an effective metric to address climate change. In tandem, emerging concepts such as regenerative and biophilic design show us the interconnectedness of all our actions and the broader impacts each design decision directly makes on our "long-term self interest." Once we pursue the whole *and* the parts, the line between where a project begins and where it ends begins to blur, and the way we practice architecture begins to change dramatically.

—Gail A. Lindsey, FAIA
Wake Forest, N.C.

All that jazz

I share your obvious excitement that Morphosis will get a chance to put New Orleans on the global map by designing the Hyatt Jazz District [July 2006, Record News, "Morphosis unveils plan for downtown New Orleans," page 25]. The use of "bulky, sculptural forms, silvery steel mesh, cantilevered building elements, and folded and curved planes" will not only give New Orleans the cutting-edge buildings that every other major city in the world now is proud of, but will metaphorically express the devastation of Katrina. Thank God there are no references to the culture and the architectural traditions of New Orleans! I am sure that neither the residents nor tourists want to be reminded ever again of the "old" New Orleans. The only disappointment is that the buildings were not designed with shipping-container modules like the award-winning housing projects you recently published.

—Michael Mekeel
West Hollywood

Corrections

An August News item on Chicago's Green Permit Program [page 34] misspelled the name of the Spertus Institute of Jewish Studies. The *Icefall* water feature in the Hearst Tower lobby [August 2006, page 74] represents the collaborative work of Foster and Partners, James Carpenter, and Fluidity Design Consultants. For the June Snapshot of Birmingham's Spiral Café [page 89], readers should note that Benoy Architects was the lead architect for the Bullring complex.

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Record News

Highlights

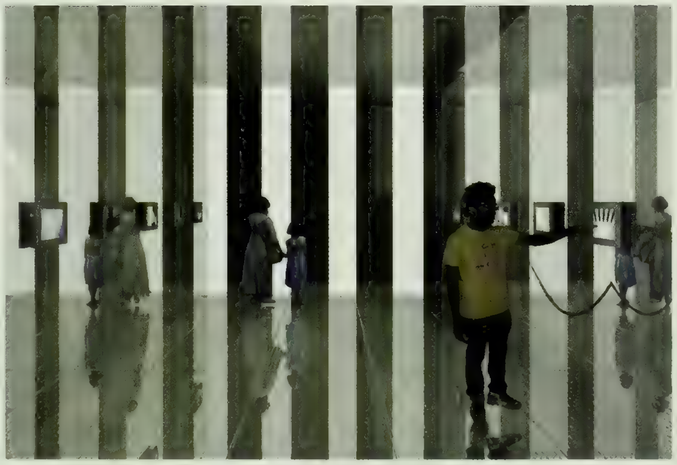
p.30 **Special section: Fifth anniversary of 9/11**
p.36 **Rebuilding the Gulf Coast**
p.40 **New designs from Herzog & de Meuron**
p.45 **Calatrava Chicago site changes hands**

Exhibition fetes Twin Towers

Visitors to New York's Skyscraper Museum this month will be able to experience an approximation of the World Trade Center Twin Towers. In an 11-by-22-foot hall, four acrylic posts mimic the dimensions of the buildings' columns. Illuminated from inside, they are reflected in the permanent stainless-steel floor and chromed ceiling designed by Roger Duffy, and in mirrored walls installed by exhibition designer Local Projects. The repetitive effect gives one the feeling of standing beneath two endlessly tall buildings.

The installation is part of the new exhibition, *Giants: The Twin Towers and the Twentieth Century.* Curator Carol Willis explains that the show is devoted not to 9/11, but rather to the design, planning, and reinvention of Lower Manhattan in the 1960s that culminated in the World Trade Center project. She adds, "This was part of that moment in American history when there was faith in technology and ambitions of bigness, whether it was the towers or jumbo jets or a moonwalk."

Models, photographs, and drawings describe the planning and design process of the downtown area. Additional elements, such as audio clips of people involved in making and working in the Twin Towers, contrast the epic architecture with human experience—a strategy of which the mock plaza is one component. "Our starting point was that people's experience of the towers is fading, it's a history," says Local Projects principal Jake Barton. "We wanted to recreate not just ideas about the towers but the towers themselves in as many facets as possible."



The *Giants* exhibition features this abstraction of the Twin Towers.

The Skyscraper Museum will launch a Web database of 500 construction photos of the Twin Towers, taken by the buildings' structural engineer Les Robertson, to complement the show. *Giants* runs through March 4. *David Sokol*

New architecture for Katrina-ravaged town

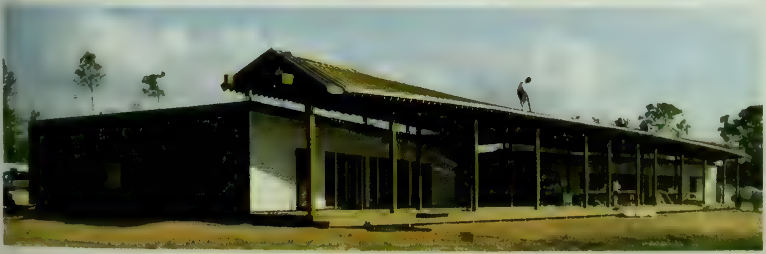
The town of Pass Christian, Mississippi, sits on a sliver of land that straddles St. Louis Bay and the Gulf of Mexico. It was largely wiped out by Hurricane Katrina one year ago. When New Orleans businesswoman Martha Murphy, a native of Pass Christian, learned of her hometown's destruction, she decided to help out. A new building designed by SHoP Architects (below), which celebrates a soft opening this month, is the first of her good deeds.

Murphy was the primary benefactor of an addition to the Richardson Building at Tulane University, in New Orleans, a job SHoP won. Days after the storm, Murphy contacted the firm to design and build a kind of triage center for the Pass Christian community. In the spirit of fast, temporary construction, the architects designed two long, rectilinear buildings linked by a porch with a freestanding roof. "The enclosed structures were really sheds," says SHoP partner William Sharples, "and originally the roof was as simple as we could make it." Southern pine timber and cladding were mostly donated for the project, as were the efforts of New York firms Buro Happold and Focus Lighting.

But come October, the team had a realization about Pass Christian. "No one's come back," Sharples says. "Part of the problem was that the commercial services aren't there. Martha started looking at a more permanent building—and to create a catalyst, with both services and architecture, to get people excited to come back."

Now the buildings house a restaurant, a bookstore, a nonprofit organization, and other tenants. And the architecture was redesigned for more iconographic effect. The underside of the skylit porch roof is a series of trusses with cable-secured intersections that give the appearance of a scoliotic spine and become internally illuminated striations at night. Sharples says the design breaks down the scale of the very long, 5,000-square-foot porch. Inside, the tongue-and-groove ceiling is similarly articulated to accommodate ductwork.

Local schoolkids plan to do homework on the porch, reports Sharples. The project also promises to be a focal point for the design community. Students at Parsons School of Design, in New York, have been the first to flock to the site. They are building an adjacent information center and laundry that should open by the end of the month. *D.S.*



A crew completes work on two SHoP-designed buildings unified by a sculptural canopy.

LMDC announces pending dissolution

The Lower Manhattan Development Corporation (LMDC) announced in late July that it will essentially disband, ending operations by the end of this year.

The LMDC was created as a joint state-city corporation in the aftermath of 9/11 to plan, finance, and coordinate the rebuilding and revitalization of Lower Manhattan. Its planning process resulted in the adoption of the Daniel Libeskind master plan for the World Trade Center site and the competition for a permanent memorial, which Michael Arad won. But with completion of the memorial, Freedom Tower, and other new construction at the site still years away, critics question why the LMDC is stopping operations now.

In an interview for the public radio program *Marketplace*, architecture critic Paul Goldberger compared the announcement to the United States abruptly leaving war-torn Vietnam decades ago, saying, "LMDC has sort of declared that it's won and is disbanding. But, in fact … [it's] leaving a very incomplete, uncertain project behind that's in a lot of chaos and confusion."

The LMDC, which allocated more than $2.7 billion in federal grants to support downtown residents, businesses, and cultural programs, says that the Port Authority of New York and New Jersey will oversee construction of the major buildings on the site. But the LMDC has not yet finished design guidelines for the construction of the tall buildings that are planned for there. The exact dates of the release of the design guidelines and when the LMDC will disband were not available at press time. *John E. Czarnecki, Assoc. AIA*

Carol Ross Barney comments on WTC redevelopment

David Childs, Michael Arad, and others have been at the center of attention as they continually redesign components of the World Trade Center (WTC) site. The scrutiny they face is immense, and no one knows that better than Chicago architect Carol Ross Barney, FAIA. The principal of Ross Barney Architects designed the U.S. Federal Building in Oklahoma City, replacing the Murrah Federal Building that was bombed in 1995. Here she discusses the challenges of rebuilding in the wake of terrorism, and comments on the WTC design process. J.E.C.

ARCHITECTURAL RECORD: *Based on your experience with the Federal Building, how do you respond to developments at the WTC site?*
Carol Ross Barney: There are similarities, like the inability to attract tenants to the Freedom Tower. The Murrah bombing created a market void for office space on that site. The General Services Administration (GSA) had to persuade federal tenants to move into our new building; it looks like government is going to step in there, too. For these buildings, the symbolism of the place initially overwhelms the functional role.

AR: *Did your client, the General Services Administration, encounter hesitancy in the rebuilding process?*
CRB: The largest protest was from employees of the Department of Housing and Urban Development, which was located in the Murrah and had the most casualties. Some people were not comfortable being so close to the site of the bombing.

The U.S. Federal Building was constructed after the Oklahoma City bombing.

AR: *GSA is more distinct than the factions at the WTC site. Is that a key difference in the success of a project of this scope and attention?*
CRB: In a way, Oklahoma City was more democratic. From the beginning of the design process, GSA provided an open forum for stakeholders, but no single stakeholder was able to override the process. GSA gave us a lot of latitude to address all parties and to explain what we were doing. I think that promoted intelligent consideration of controversial issues like security, instead of knee-jerk solutions.

AR: *Any lessons you learned for moving through the obstacles and remaining true to your design vision?*
CRB: We tried to concentrate on the long view and consider how our building would benefit and influence Oklahoma City in five years and 50 years, rather than design to negate the latest threat or fear.

AR: *How did you deal with the spotlight when you were selected for the Oklahoma City project?*
CRB: At first, it made me uncomfortable. But it did give me a forum to talk about design and the importance of livable environments. I had to set my defaults, because there's a lot of clutter along the way.

AR: *What's your opinion of the design of the Freedom Tower?*
CRB: Look at the base of the Freedom Tower. How does that add to the urban quality of the area? It's not a friendly urban building. The police forced a solution according to their notion of threat. That unfortunate base is there because of what happened in Oklahoma City, a vehicle bomb parked near a building. And that has happened only once in recent history. What a price to pay for a single event! It is sad that this building doesn't break any new ground about security design or make this intense land use more livable.

AR: *From what you have seen, are the designers of the buildings and the memorial at the WTC site incorporating the most effective means for a secure, yet open and inviting place?*
CRB: No, security design is not rational at all, and it has limited effectiveness. If you did a cost/benefit analysis on security upgrades, the stuff doesn't pay. The government standards are written to prevent another Oklahoma City, but a future terrorist attack is unlikely to be anything like Oklahoma City.

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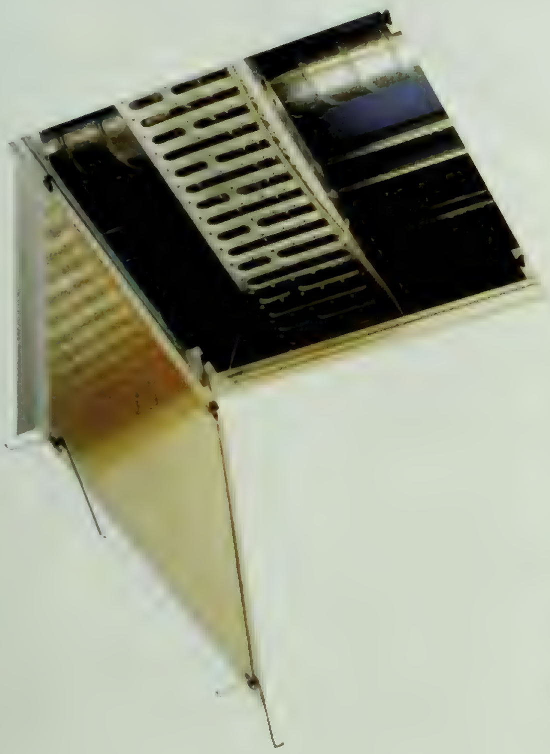

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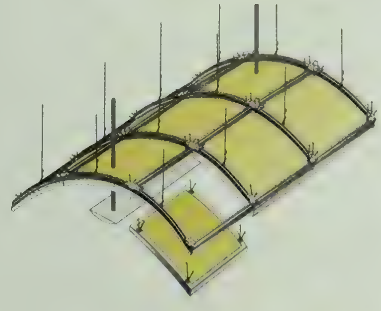

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Memorial architects say work is moving quickly

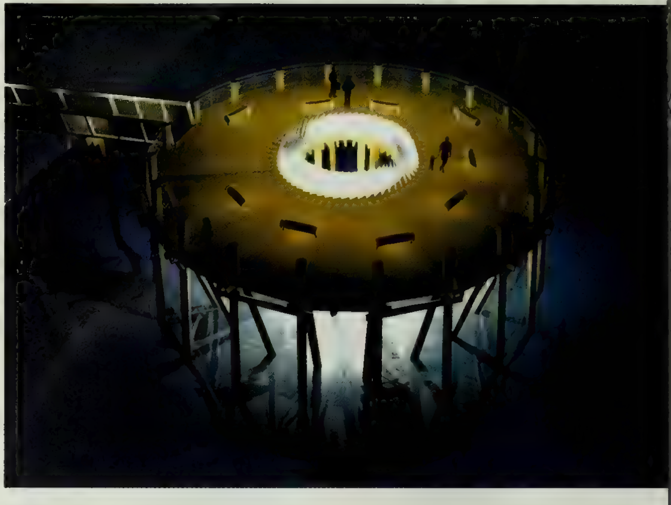
As controversy and politics have slowed progress at the Ground Zero memorial site, several other memorials to the victims of September 11 are proceeding at paces that surprise even their designers. The memorial to victims in Westchester, New York, will be dedicated on September 10. And the Staten Island memorial, though significantly smaller than some of the others, was completed in 2004.

Paul Murdoch, AIA, who is designing the Flight 93 Memorial in Shanksville, Pennsylvania, says that his process has been “not only surprisingly smooth, but also surprisingly accelerated,” even though Murdoch finds that he’s working with far more constituents than he normally does. He credits the National Park Service for its guidance of the process. Nevertheless, since it involves as much as 2,200 acres of landscape, the project is not scheduled to be complete until 2011.

Paul Murdoch’s Flight 93 Memorial is proceeding at an “accelerated” pace.

In Alexandria, Virginia, Julie Beckman, who is designing the Pentagon Memorial with her partner Keith Kaseman, has had a slightly different view of working on one of the three major memorials. She says that while the process, which entered the construction phase this summer, was “very fast in the world of memorials,” fund-raising efforts delayed construction from the original two-year timeline. “They assumed that raising $20 million would be a drop in the hat,” Beckman points out. “It wasn’t.” The bureaucracy has been kept to a minimum, according to Beckman, because the Pentagon Memorial Fund is the sole client, and the Pentagon itself is not weighing in on aesthetics. “The Pentagon is kind of its own entity, like the Vatican, so there’s less outside pressure to make changes,” she says.

In comparison, the memorial in Hoboken, New Jersey, is inching along. “It’s nothing unusual,” says Jeanne Gang, AIA, the architect member of the designers FLOW Group—“just more people to have to talk to.” For Gang, as for many of the architects, the emotional content of memorial design is one of the most demanding aspects of the work. “Now we’re dealing with symbolic meaning,” she says, “which I haven’t really dealt with before. It’s been very difficult, but I feel compelled to move on and do this really well.” Gang’s team currently is working on construction drawings. They hope that, in spring 2007, they will drive the piles for the artificial island that will be the memorial’s centerpiece.


FLOW Group’s artificial-island memorial should start construction in spring.

Frederic Schwartz, FAIA, who dealt with political maneuvering as part of the THINK team at Ground Zero, is now designing two memorials: the New Jersey State memorial, in Jersey City, and the one in Westchester, New York. “I would use the words ‘phenomenal’ and ‘fantastic’ to describe the processes,” Schwartz says, who also agrees with Gang’s assessment of the sensitive nature of the design work: “The emotion is never ending.”

But for all the praise of the fast memorial processes, perhaps none has been as smooth as that of the Staten Island memorial, two curving fiberglass “postcards” designed by Masayuki Sono and Lapshan Fong. Their design was selected in 2003, and the memorial opened September 11, 2004—though some work continued after that time. Fong says, “We couldn’t delay even one day.”

For some of these designers, memorial work has led to other projects. Kaseman and Beckman were invited to a closed interview process for the design of a memorial to the space shuttle Columbia in Nacogdoches, Texas. They were selected for the project and are awaiting NASA’s unveiling of their design. Schwartz says that his memorial designs led the people of New Orleans to recognize that his firm could help; it is now among the teams working on rebuilding plans there. He emphasizes, however, that he does not bolster his résumé with the memorial projects. Fong says that the Staten Island memorial had led to more work indirectly, because “it’s in the portfolio.” But his partner has a different view of the marketing influence of their design. “People see the memorial,” which consists of two curving fiberglass panels, Sono says, “and don’t think, ‘I want a house like that.’ ” *Kevin Lerner*

The Staten Island memorial is already open.

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Firefighters' Monument unveiled across from Ground Zero

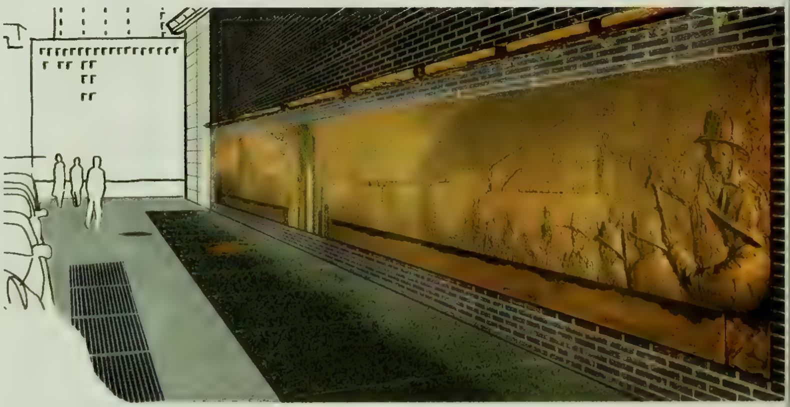
It was originally meant to be a series of vitrines—an exhibition of 9/11 memorabilia and photographs presented in glass cases and illuminated by small halogen spotlights. But when Viggo Rambusch was introduced to the Firefighters' Monument project, he remembers countering, "a display case is not a permanent memorial."

Now it's a figurative, 7,000-pound, bronze bas-relief sculpture installed within a 6-by-66-foot niche on 10 House, the newly built home of Engine Company 10 and Ladder Company 10 that sits across Liberty Street from Ground Zero. Crews worked through the night of June 10 to lift the monument's three panels into place, and at daybreak, as if out of nowhere, it appeared for its official dedication. The day marked the fourth anniversary of the conclusion of the Fire Department's recovery effort. Crews are still waiting to lay granite—the same used for the Freedom Tower's cornerstone—in the sidewalk in front of the sculpture.

Rambusch is honorary chairman and senior project manager at the Rambusch Company, a 108-year-old firm that fabricates decorative metalwork, stained glass, and lighting. When Brian D. Starer, vice chairman of Holland & Knight Charitable Foundation, which funded the Firefighters' Monument, approached Rambusch with the request to make the piece, Rambusch evoked Trajan's Column instead of the display cases. The 98-foot-tall column has stood in Rome since the year A.D. 113, its spiral bas-relief commemorating Emperor Trajan's victories in the Dacian Wars. Rambusch vetted bronze as a noble material that could also withstand "hammers, paint, and all sorts of damage." Unlike its precedent, this memorial doesn't revel: The Twin Towers, depicted at the moment of the second plane's impact, stand at the center of the relief. It is flanked by scenes of firefighters engaging in rescue, with several of the figures exhibiting strain and exhaustion, but not despondency. At the behest of the New York City Fire Department, "It is a collage of the entire rescue effort; both buildings have been hit, but there is not the suggestion of collapse," says Martin Rambusch, chairman of the board.

The relief was rendered in three panels, so that it can be moved from 10 House to a permanent stand at Ground Zero sometime in the future. "It was a small congenial group, which allowed us to move along at a steady clip," Martin Rambusch says of the memorial's fast execution. "Everyday politicians find a photo-op in front of Ground Zero. You'd think they'd be embarrassed that nothing's complete."

In the meantime, the monument hugs the wall of the station house, honoring the 343 firefighters who died. A separate plaque is dedicated to Glenn J. Winnuk, a partner at the Holland & Knight law firm and volunteer firefighter. He ran from his office at 195 Broadway to the Twin Towers to help victims, and never came back. *Leigh Batnick*



A symbolic granite sidewalk will finish off work on the Firefighters' Monument.

Interviews drive ongoing WTC evacuation study

Most studies that have tested the structural integrity of the Twin Towers, such as last year's comprehensive report by the National Institute of Standards and Technology (NIST), utilize computer simulation and materials analysis. One research project, still under way, relies solely on interviews with people who escaped the buildings.

Ed Galea, a professor of fire safety engineering at the University of Greenwich, England, oversees HEED, or High-Rise Evacuation Evaluation Database. He is investigating whether or not the World Trade Center buildings were well suited for a quick evacuation, and why evacuees left the building in the manner that they did. The project, funded by a $2.75 million grant from the British Engineering and Physical Sciences Research Council (EPSRC), began in September 2004 and will continue through next year. To date, more than 300 interviews have been conducted, and Galea hopes the total will reach 1,000.

"It's a fairly unique project in that we're looking at a mix of psychology and engineering," says Galea, who is also working with scholars from the universities of Ulster and Greenwich. Interview queries broach the processes by which people left the buildings, their reasons for responding to fire alarms at varying speeds, why they might have moved slowly down stairs, and whether or not they yielded to evacuees entering at lower floors, listened to building superintendents' commands, and considered exiting the building to be a risk. There is no video footage of stairwell evacuation.

Galea says that the results of the study, to be released in November 2007, will encourage faster fire-alarm response and evacuations. He also predicts the research will result in better building codes and more accurate evacuation-simulation software.

The exhaustive interviews can require as much as two hours. Data is broken down into categories, such as "response times" and "motivating factors for leaving." "People in the building who evacuated are the experts," Galea says. Similar investigations, such as the NIST effort, use questionnaires that limit the range of responses. After the project is completed, interview transcripts and researchers' analysis will be distributed to engineers and made accessible to the public on wtc-evacuation.com. Prospective interview candidates can also consult this site to learn more about participating in the study. *Sam Lubell*

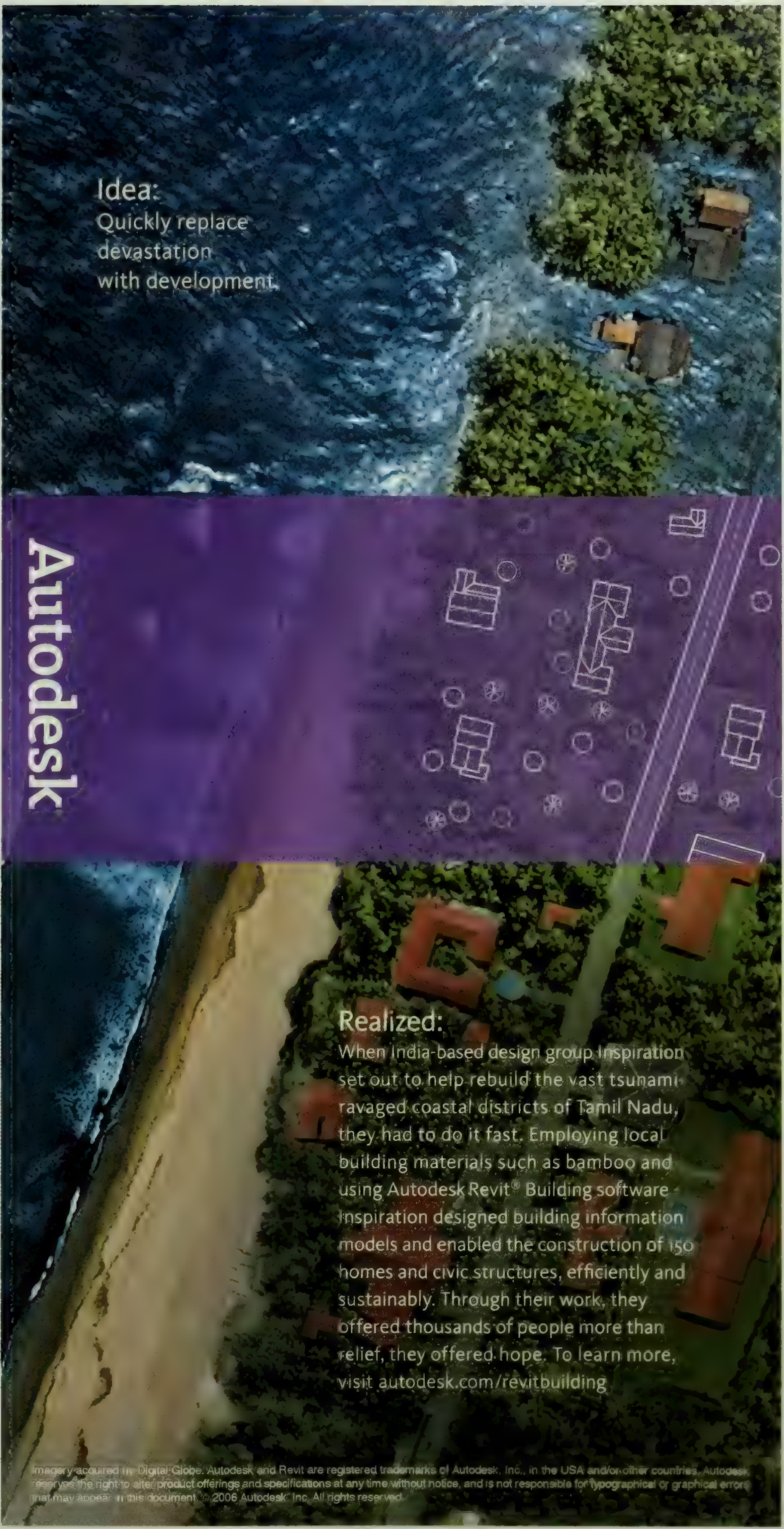
Port Authority takes over WTC memorial

On July 6, the Port Authority of New York and New Jersey, owner of the World Trade Center (WTC) site, assumed control of building the memorial and its museum. The WTC Memorial Foundation ceded control of construction but will continue fund-raising and overseeing design.

Under the new deal, the Port Authority will pay as much as $150 million for the memorial's related infrastructure, and an additional $45 million for cost overruns. The Lower Manhattan Development Corporation has said it will contribute $250 million through federal Housing and Urban Development grants. The foundation has raised $131 million so far.

At the announcement, Governor George Pataki praised the "efficiencies" that would result from the transition, and pledged that it would expedite the building process. He pointed out that the Port—which is developing the Freedom Tower and building the WTC Visitors Center, the World Trade Center transit hub, and Tower 5—built the temporary PATH station at the WTC site in "just 16 short months." Construction on the memorial is scheduled to begin September 11.

Citing the Port's reputation for bureaucracy, cost overruns, and value engineering, some critics wondered whether the agency can shoulder another complicated project with high design values. The public response to the move has been largely positive, though. Jeremy Soffin, vice president for public affairs at the New York planning advocacy group Regional Plan Association, was pleased with the changeover: "It makes things a lot easier to have one agency in charge, and it gives them the ability to do what they do best, which is build," he said, adding, "Forget about the past; I think the current leadership of the Port Authority has shown itself to be quite competent." *S.L.*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High costs plague Gulf rebuilding effort

Several market phenomena could hamper the Gulf Coast's rebound from the 2005 hurricane season. Shortages of raw materials, in combination with record fuel prices, are forcing price increases for residential contractor supplies as well as construction delays.

"Construction and labor supplies have been tight for several years, with material costs increasing much faster than overall inflation," says Michael Carliner, vice president of economics for the National Association of Home Builders (NAHB). In the aftermath of Hurricane Katrina, there was a spike in demand for certain repair materials. But Carliner explains, "The 2005 hurricanes actually reduced demand in the short term. The long-term rebuilding effort will mean additional demand, and shortages are therefore likely to continue for several years."

Surging domestic construction and demand from fast-growing nations such as India and China, as well as manufacturing constraints, are combining to drive prices higher globally for some building products. This is taking place even though, in the U.S., increasing mortgage rates and slowing job growth have since brought a slowdown in new home construction and remodeling.

Copper, for example, leaped in price from $1.60 per pound to more than $3 per pound, says John Mothersole, an economist with Global Insight in Washington, D.C. A new 2,100-square-foot, single-family house uses about 440 pounds of copper, mostly in wire, pipes, and plumbing fixtures. According to Ken Simonson, chief economist for the Alexandria, Virginia, trade group Associated General Contractors of America, copper and brass pipe, wiring, faucets, and flashing have experienced an 88 percent price increase since last year.

Similarly, the NAHB survey of builders in early May 2006 found 34 percent reporting shortages of drywall, including 5 percent reporting severe shortages. That was the highest share reporting drywall shortages in five years. The U.S. Census Producer Price Index (PPI) shows that gypsum products have gone up in price by 22.9 percent since this time last year.

Energy markets are also contributing to the trend. Light-sweet crude oil prices hit a record $77-per-barrel cost in July, a 23 percent year-over-year increase, which has pushed prices for PVC pipe up 20.5 percent in the same period, reports the PPI. Asphalt, tar roofing, and siding products likewise shot up by 16.7 percent on the PPI.

The upward trends in fuel prices account for approximately 20 percent of cement prices. And with cement consumption topping 130 million metric tons in 2006, a 3.7 percent increase from 2005, it has jumped 15 percent in price. As a result, concrete products are up 10.5 percent, too, according to the PPI. Edward Sullivan, chief economist for the Portland Cement Association, foresees average annual demand increases of 2.5 percent through 2009.

Simonson adds that fuel prices can have a double-whammy effect. Because building supplies are transported to work sites by means of diesel fuel, "the delivered costs of many materials have gone up even more than their prices at the producer's point of sale."

Lumber is a rare exception. It is experiencing relief thanks in part to a U.S. Commerce Department decision in December to halve duties on Canadian softwood lumber imports, which account for one third of domestic lumber use. The move helped drop composite framing lumber prices to $317 per 1,000 board foot in July from $419 in 2005. That decrease promises to continue in 2006 as fewer home orders lower demand.

But in the Gulf Coast, cheaper lumber is more than compensated by the compound expenses of other materials—and labor. Don Sampson, president of the Louisiana Home Builders Association, a Baton Rouge–based trade group, explains: "Our labor force mostly consisted of hourly workers that needed a paycheck each Friday, and when there wasn't one, they left. The people who stayed here are charging a premium. We are building more houses because of the storm. And that will last a couple more years. But it's taking about 30 percent longer on average to build a home due to workforce availability. It has taken a lot of the home buyers out of the market. Low interest rates were great, but high material costs are taking a lot of families out of the picture." *Tony Illia*

Students overcome materials shortage

Facing a shortage of materials in Katrina-ravaged Louisiana, how could 34 fifth-year students from the School of Architecture at Louisiana Tech University install elegant hickory wood floors, exterior wood siding, and tile in a house for an underprivileged family in Ruston? "We had to hunt and peck to find donations," says Justin Roark, one member of the group.

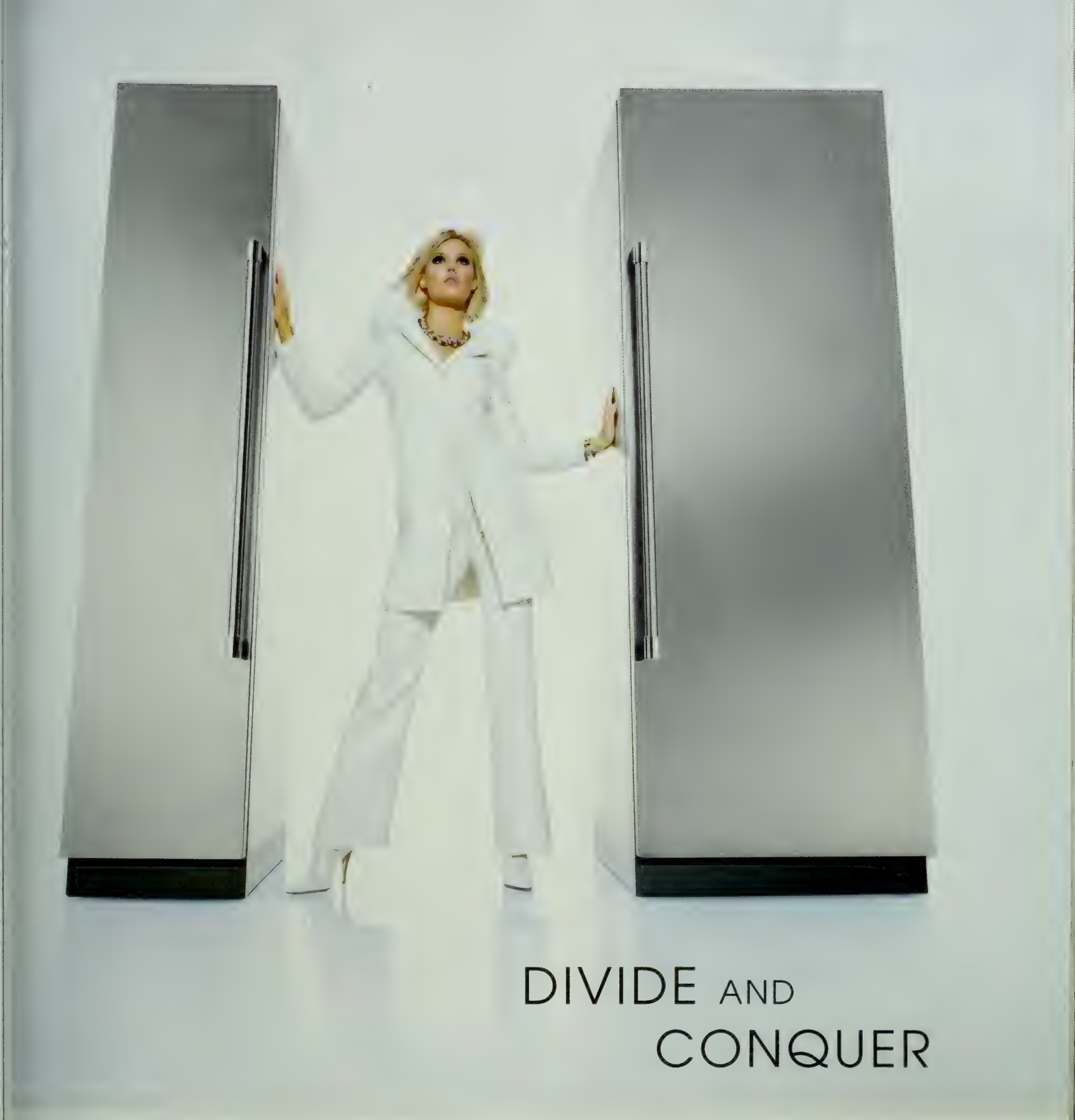
In 2005, the North Central Louisiana chapter of Habitat for Humanity commissioned the project on behalf of a mother, her partner, and three children. Since funds, materials, and labor were entirely donated, students found themselves competing with relief efforts focused on the southern section of the state. A $25,000 grant from Weyerhaeuser jump-started the team.

Despite the patchwork of materials donated by local suppliers or discovered by pure chance, the team finessed a house with contemporary appeal. The 1,350-square-foot building (right) is subtly massed to nestle into its wooded site; its floor plan takes advantage of prevailing winds and sunlight, while high ceilings enhance the sense of openness.

This Habitat house is a lesson in creativity.

The design responds to family needs by providing privacy as well as desks for the children's schoolwork. Materials and systems were selected with an eye to keeping maintenance and operational costs at a minimum. Sustainable principles were also incorporated where feasible.

While students learned the logistics of material procurement and construction management, Roark, who now works for Nashville-based Earl Swensson Associates, says sheltering a needy family resonated the most. "We had just put up framing for the walls in April; the mother saw that each child was going to have their own room and she started crying." They took occupancy in May. *Russell Fortmeyer*



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Challenged schools prepare for new year

This fall, the three Rs could easily represent repopulation, rebuilding, and 'rithmetic, as school districts affected by Hurricane Katrina try to provide an education with fewer intact structures, smaller tax bases, and an undetermined population.

In Mississippi, where 16 schools were completely washed away in the storm surge, and only 14 of 152 school districts didn't close, students were back in school by October 2005. Interviewees attribute the quick rebound to efforts by school superintendent Dr. Hank Bounds to loosen up federal dollars for portable classrooms.

Most students will continue to attend classes in these temporary structures while officials determine where schools may be built to comply with the new FEMA flood elevation maps, and how they will be financed. Ironically, the Hurricane Recovery Act provided funds for restart but not reconstruction, says Caron Blanton, communications director of the Mississippi Department of Education.

The picture in southern Louisiana is far more fragmented. In New Orleans's St. Bernard Parish, where all housing stock was destroyed and 10 of 22 school buildings were recommended for demolition, 3,000 students are still expected to return to school this fall. They will attend classes in two renovated schools and portable classrooms. "We were a financially healthy school district, so we were able to buy our own trailers to get it up and running," says Beverly Lawrasen, assistant superintendent. "We've since been reimbursed by FEMA for the trailers, but reconstruction, which is a 90/10 split, is a different story."

Between lost sales and property taxes, and state funding that's based on student population, St. Bernard is having a hard time coming up with the 10 percent match. To circumvent stipulations for Hurricane Recovery Act funds, the district is using its operational money for construction and shifting the federal dollars into its operation budget. "It would have been advantageous if a lot of the red tape had been cut for us," Lawrasen says.

In Orleans Parish, 56 of the 117 schools managed by the Louisiana Department of Education will be open. Approximately 12,000 students had attended classes last year. Meg Casper, director of communications, notes, "We're planning for 34,000 this fall, [but] the demographers are telling us we will have far fewer than that."

Assessing damage, the order in which schools should be repaired, and availability of workers and materials has been more cumbersome for Orleans Parish than securing funds, Casper explains. "We are dealing with all the issues that people who are trying to rebuild their houses face. Costs are higher, and there is trouble finding materials and workers."

Schools are being repaired according to the amount of damage and repopulation trends. "As residents come back and the city does more planning, hopefully we'll be able to make more decisions," Casper says. *Angelle Bergeron*

New Gulf Coast subdivisions are designed to take a beating

While the natural force of hurricanes can be devastating, much property damage caused by storms comes from debris flying off nearby buildings.

Armed with this knowledge, real estate investors are transforming swaths of land into hurricane-fortified developments whose scale is unprecedented. To be truly safe, the thinking goes, not only must individual homes be heavily reinforced for potential disaster, but all of the surrounding homes must withstand wind and flooding, too.

Jim Hayes, founding principal of Beaumont-based developers Crown Team Texas, says his firm recently acquired 9,000 acres of coastal land near Houston for multiple housing developments. One of those parcels will become Audubon Village, a project that is currently under way. Each of the 600 residential units is built on concrete stilts and designed to withstand 130-mile-per-hour winds.

Hayes says, "Even with the hazards and the potential for disaster, people want to be on the water."

Alys Beach, a development on the northwest coast of Florida, is similarly fortified, but designed using new-urbanist principles and inspired by Bermudan architecture. This 158-acre development will ultimately comprise 890 residential units, according to town architect Marieanne Khoury-Vogt. Buildings will be all-masonry construction with impact-resistant doors and windows. "It has to be that way, otherwise there could be total devastation," Khoury-Vogt says.

Both developments are certified by the Tampa, Florida–based Institute for Business and Home Safety. Chuck Vance, program manager at the institute, explains that building codes represent minimums for safety, so his organization seeks to raise that threshold. Since the institute's launch in October 2000, the certification has been implemented in more than 1,500 homes in 11 states. *John Gendall*

The houses of Audubon Village (top) are reinforced against wind; concrete stilts allow them to stand above potential flooding. Recently completed buildings in Alys Beach (above) mask their defenses in the style of new urbanism.

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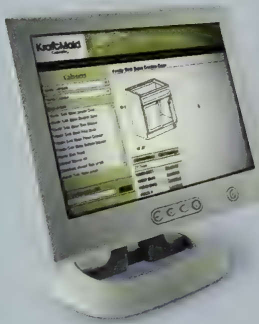

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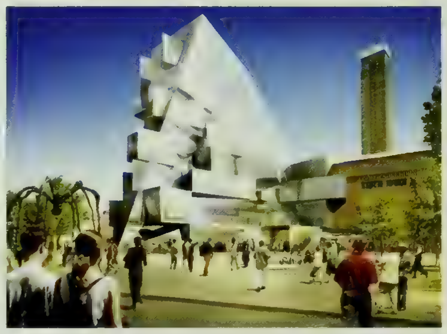
Herzog & de Meuron propose cut-glass ziggurat for Tate

Herzog & de Meuron have returned to the Tate Modern museum in London. In July, the Swiss team revealed the design for a glass extension to Bankside Power Station, which the firm renovated to serve as the Tate's home. The addition will increase the existing floor space by 60 percent.

Opened in 2000, Tate Modern was designed to accommodate 1.8 million visitors a year, but last year, 4.1 million art enthusiasts passed through its doors. New York's Museum of Modern Art drew 2.67 million visitors over the same period, and 2.5 million visited the Centre Pompidou in Paris. "There is serious overcrowding, particularly at weekends," a Tate official says.



The crystal pyramid design planned for Tate Modern.

Bankside still generates electricity. So when, in 2000, EDF Energy Networks began considering plans to move its plant from the Switch House substation into a smaller area within the building, Tate director Nicholas Serota took to deploying the vacancy for the museum's use. Herzog & de Meuron were appointed in January 2005.

The planned extension comprises 11 stories of stacked-glass blocks. The blocks protrude at a multitude of angles from the side of an essentially pyramidal form. It is a fragmentary, experimental contrast to the monolithic power station. The architects say that the protruding cubes can be interpreted in two ways: as the erosion of the pyramid, or as a pyramid in the process of emerging.

The addition, which is sited adjacent to the power station's southern facade, will include 10 new galleries for contemporary art, accommodating photography, film, video, and performance art. Other features include teaching spaces, two new performance areas within the oil tanks of the former power station, and a new entrance that opens up a north–south axis through the building for the first time.

The top three floors of the 230-foot structure are visible from the north, changing the appearance of the South Bank from St Paul's Cathedral, a view that is generally considered sacrosanct in London. The Twentieth Century Society, an organization dedicated to the preservation of post-1914 arts and design, has expressed concerns about the height of the proposed addition and its adventurous form, which the society fears may detract from the original structure.

Tate Modern will submit a planning application in the autumn. The £165 million ($314 million) cost will be equivalent to the original conversion of Bankside Power Station. Officials hope to complete the addition by 2012, when London hosts the Olympic Games. *Adam Mornement*

New Parrish museum unveiled

Well-heeled Hamptonites attending the annual fund-raiser in July for the Parrish Art Museum, in Southampton, got first glimpse at renderings and models of the institution's new home. Herzog & de Meuron founder Pierre de Meuron, Hon. FAIA, was on hand to unveil the design for a 64,000-square-foot complex that is scheduled to open in 2009.

The design, a series of smaller built forms, was inspired by artists' studios located in Long Island's East End, the region that is being changed rapidly by the Hamptons' elite. The museum's indigenous landscape of meadow grass, scrub woodland, and coastal dunes reinforce the architects' intent that it appear as a small compound of studios.

Four main galleries are likely to contain work by major artists, such as Willem de Kooning and Fairfield Porter, who are well represented in the Parrish inventory. North-facing monitors and generous windows will connect visitors to the native habitat outdoors, and to the daylight that attracted artists to the East End originally.

The event raised $900,000 for the Parrish. Altruists were dutifully thanked: The evening's goodie bags included sculptural chocolates representing the different volumes of Herzog & de Meuron's proposed design. *D.S.*

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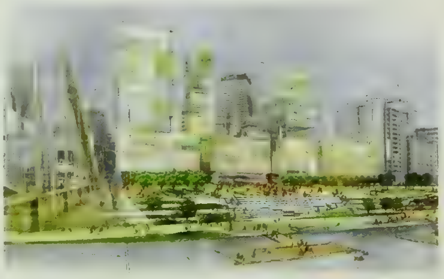
Behnisch heads team for downtown Pittsburgh development

When development of a 6-acre site in downtown Pittsburgh is completed around 2014, ribbons of green will run up, down, and across it: Vertical gardens will wrap the interiors of apartment buildings, and a two-block-long elevated park will traverse a roadway, connecting city dwellers to the Allegheny River. This is the vision of the international design and development team RiverParc, headed by Behnisch Architekten, that won the Cultural District Riverfront Development Competition; additional team members included Gehl Architects of Copenhagen, and Toronto-based architectsAlliance. In July, the Pittsburgh Cultural Trust announced that RiverParc would design the $460 million mixed-use project, beating out teams led by design architects Konig Eizenberg and MVRDV.



RiverParc's scheme has abundant green space.

A 14-person jury of recommendation chose RiverParc unanimously. Despite the nondescript nature of the buildings in the team's contest submittal, the thoroughness of the planning effort prevailed. The cultural trust's guidelines stated, "It is more important to have a well-designed master plan … than to seek 'iconic' design."

Residential development pervades the winning master plan, which features 700 new residential units distributed among condominiums, town houses, and rental apartments. The first of two phases is scheduled to commence in mid-2007. It includes construction of four residential buildings (350–400 units) with ground-floor retail spaces, town houses, parking lots and structures, and infrastructure. A second phase calls for a performing arts venue, a four-star hotel, and additional residential buildings.

In creating a "three-dimensional garden city," RiverParc's scheme includes four outdoor public plazas and pedestrian streets to accompany the planted zones inside the residential buildings. Also, the new Three Sisters Gallery park, named after the group of three bridges that span the Allegheny River, will occupy an innovative span that captures space above the 10th Street Bypass. The architects say they will seek LEED-certification, and will enter the project in the USGBC pilot program to be one of the first LEED-ND certified neighborhood districts in the country. *Jennifer Lucchino, AIA*

Design for Zurich Forum angers preservationists

Architect Rafael Moneo, Hon. FAIA, has won a competition to rebuild the Zurich Forum, a congress and meeting center on the Swiss city's lakeshore. But the proposed demolition of the Forum's current home has delayed the project.

The project brief, scaled back during the competition for excess bulk, called for demolishing the existing Kongresshaus and replacing it with a 200,000-square-foot facility. It also included new backstage areas for the two adjacent concert halls of the 1895 Tonhalle, and a 230-room hotel.

Moneo says his design of angled glass prisms will "create a publicly oriented Congress Hall where now there are a set of introverted auditoriums." Jurors acknowledged the proposal's respect for the existing urban context, its interior integration with the existing concert halls, and its "abstract translucency" and "strong urban presence," qualities they felt justify the estimated $285 million cost. Ironically, Moneo was also favored for preserving the adjacent historic Villa Rosau and much of its garden, around which he arranged the hotel rooms in low-scaled curving forms.

Moneo's building would replace Kongresshaus.

The original Kongresshaus was built for the 1939 Swiss Exhibition by architects Max Ernst Haefeli, Werner Moser, and Rudolf Steiger. Its defenders call it "a key work of Modern architecture," and are fighting to maintain its status as a protected monument. Their effort could force a public referendum, which could delay the project start until 2008—or cancel it outright. *David Cohn*

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Coney Island icon in the limelight

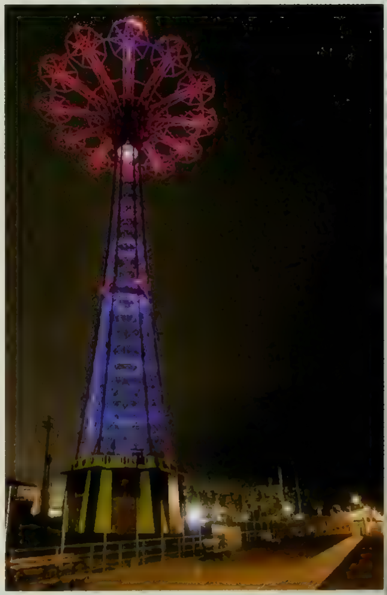
If the Parachute Jump, the famed thrill ride that operated at Coney Island between 1941 and 1964, was once compared to a flower, the 277-foot structure had become a spent dandelion by the late '90s—planners of a new minor league baseball stadium even feared the jump might topple onto it. In July, the Brooklyn icon bloomed once again, with the launch of a new integral lighting installation designed by Leni Schwendinger Light Projects.

For Schwendinger, lighting designs explore "what's possible with light above and beyond safety and security." She adds, "What's interesting about this way of working with light and lighting in the urban context is that we're able to give these iconic figures a kind of fluidity or flexibility."

Her transformation of the jump is a delightful addition to the area's nighttime landscape, one that connects the gritty edge of Brooklyn with the rhythms of nature. One light sequence, for example, accompanies the full moon's arrival and departure with a three-day waxing and waning of whites.

Although the illuminated jump is being celebrated as a symbol of Coney Island's rebirth, the gestation of the project goes back as far as 1999, when the New York Department of Design and Construction enlisted engineers and architects STV Group to preserve the structure. The firm ultimately chose to take apart the rusted and delaminated tower in sections so that contractors could replace steel components and remove lead paint without contaminating the beach area, then reassembled it with new high-strength bolts securing the splice plates. After work was completed in 2003, "there was a little lull in the action," says Albert Thompson, STV project manager. "The city realized that it had received a newly refurbished, bright, shiny tower, [but] it could only be appreciated during the day."

A year later, a consortium of city organizations revisited STV's early suggestion that the jump be transformed into a lighted public artwork. Officials were particularly keen on the project because they felt the area was ripe for economic development. "The focus was not only on the Parachute Jump," Thompson explains. "There was a focus on revitalizing Coney Island."



The Parachute Jump shows off its makeover.

Schwendinger was chosen from a short list of four teams to compose the lighting design. In her scheme, 17 floodlights and 450 LEDs perform six variations, including compositions for weekdays, weekends, and special events, which keep repeat customers enthralled. Schwendinger says, "I like to connect with the actual activities, the meaning of the site, the uses of the site, and express those in new ways." *Jeremy Lehrer*

Irish developer takes over Calatrava site

In July, Dublin-based Shelbourne Development and the Shelbourne Group purchased the 2.2-acre Chicago lakeshore property originally proposed for a 124-story tower designed by Santiago Calatrava, FAIA. Local firm LR Development sold the parcel for $64 million, after a third developer with an option on the property, Chicago-based Fordham Company, had fallen short on financing for the hotel/multifamily tower. Fordham had originally announced the project with Calatrava.

Skyscraper site gets new owner.

Since Shelbourne's acquisition, the estimated cost of 400 N. Lake Shore Drive was revised to $1.2 billion from a March estimate of $550 million. "We think that that was a very optimistic number," says Thomas Murphy, spokesperson for Shelbourne executive chairman Garrett Kelleher, referring to the original estimate.

Observers question whether the skyscraper will get built: The price tag exceeds Donald Trump's 92-story Trump Tower Chicago by about $450 million. Furthermore, condo buyers have abundant choices in the Loop. Data from Chicago-based Appraisal Research Counselors shows 3,041 units between Roosevelt Road and North Avenue were delivered in 2005, and 4,446 deliveries are projected for 2006.

Jim Kinney, president of Chicago-based Rubloff Residential Properties, says Calatrava's tower has a good chance because of the Calatrava name and political backing. "There is a lot of interest in it, and I believe [Mayor Richard Daley] would like to see it built," he says. "I think if you have the support of the mayor on any project, it's critical."

Another caveat is that the average condominium cost per square foot—$800—originally announced for the project appears to have been on the rosy side. Rising construction material costs and increasing prices for luxury condominiums in the Loop will likely cause the figure to go higher. Plans call for unit prices in the 300-condo structure to range between $600,000 (almost 20 percent more than the starting price at Trump Tower Chicago) and $5 million.

The 920,000-square-foot building will measure 1,570 feet tall, and include a 500-foot-tall spire/antenna. In addition to the condo units, the building would hold 150 hotel rooms on 20 floors and 50,000 square feet of retail and support space.

Calatrava's spiraling design, which has inspired comparisons to a plume of smoke, drill bit, and swirling cloak, will be achieved structurally: Concrete shear walls will surround the building core, and modular box-like sections containing the units will cantilever from the core. The boxes each have curving, concave sides, and they would be stacked and rotated 2 degrees, twisting 270 degrees by the top of the ascent.

The Chicago Plan Commission and City Council approved the project in March and April, respectively. Once the drawings are finalized and the building permit is obtained, the ground breaking will take place in the spring. *Craig Barner*

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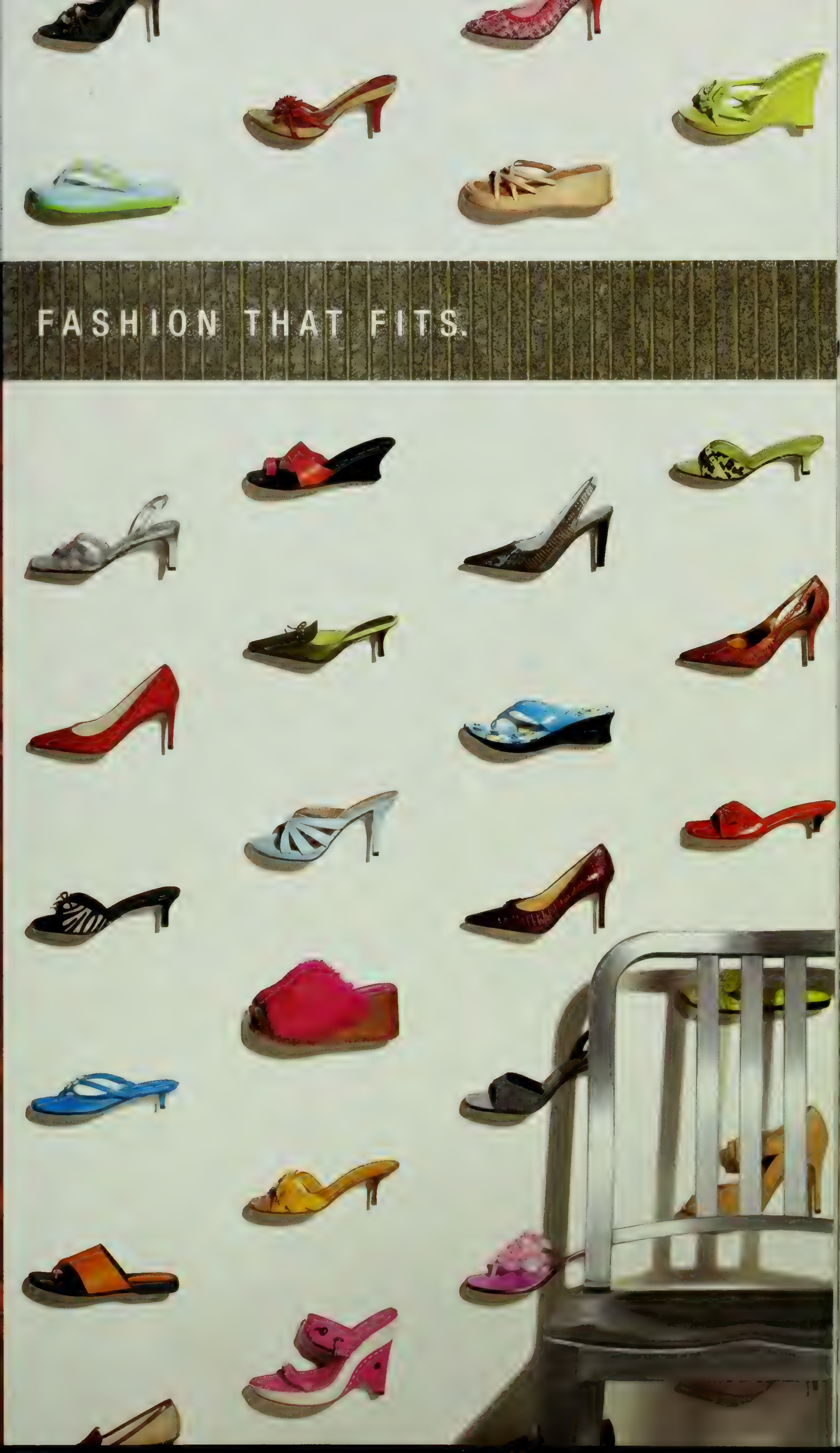

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For and about the emerging architect

archrecord2

From a Boston firm that was launched in a hurry to find design solutions for urban-scaled problems to a student taking his time to create the perfect desert shelter, the emerging architects featured in this month's archrecord2 are living for ideals—and setting the highest standards for their work. Examples? SsD's house almost completely constructed of discarded materials from Boston's Big Dig, and Trevor Pan's two-year labor of love, 3 Desert Way. Visit www.archrecord.com/archrecord2/ for more.

Design

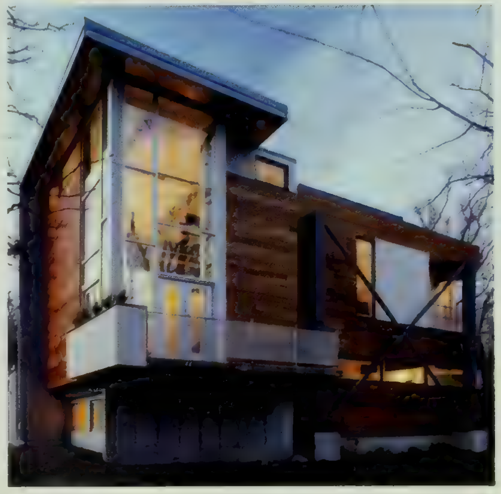
The acceleration of Single Speed Design

Jinhee Park and John Hong, AIA, principals of Single Speed Design (SsD), grabbed the firm name from the single-speed bicycles they ride around on in Cambridge, Massachusetts. Although they didn't mean the name to stick, in the end they decided to keep it. "We had a project, so we had to come up with something in a hurry," says Hong. "We thought we'd change it later, but it somehow fit us." Functional, simple, and aesthetically pleasing, the bikes represent the kind of architecture Park and Hong aspire to make. "We want to bring out the essence of design," says Hong, who says he even stripped all decals and branding from his bike.

Yet while simplicity is one of the concepts Hong and Park tout, complex and demanding theories have made their way into the fledgling practice's work, with maximum results. In just three years, the now-five-person firm has created locally and nationally award-winning multifamily housing in Boston, as well as a home built almost entirely of leftover materials from the city's Big Dig project. It has also achieved honorable mentions for designs submitted to global competitions.

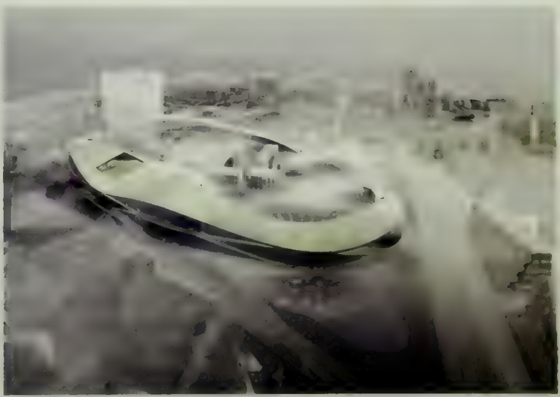
The Big Dig House in particular is an example of Hong and Park's ability to take risks. They had been given the chance, by a developer willing to try something different, to design the Valentine Houses, a multifamily housing structure in Cambridge. A contractor in charge of destroying the residual materials from the Big Dig's construction saw the Valentine project and contacted SsD. "He had a junkyard full of concrete and steel and this idea to recycle it into a house," says Hong. Because Park and Hong's client was willing to let his home serve as a research project, it was a success. Using over 600,000 pounds of recycled materials, the home has become a prototype for recycling large, heavy materials, and a bit of a curiosity in the area.

While the house has led to other possible projects using discarded Big Dig materials for the firm, SsD is also



Big Dig House, Lexington, Mass., 2006

The structural system for this house is almost wholly composed of steel and concrete from Boston's Big Dig, utilizing more than 600,000 pounds of recycled material, including pieces of the I-93 off-ramps. Large upper-level plantings blur relationships between interior and exterior spaces.



Asian Cultural Complex, Gwangju, Korea, unbuilt

An honorable mention in an international competition, this arts complex includes an existing fountain, amphitheaters, a rooftop theater, parks, and playgrounds on an urban scale. A porous concrete slab encircles the complex.

focusing on other sustainable issues, mostly in an urban context. Both Park and Hong have ties to Korea—Park moved from Seoul, where she studied industrial design, eight years ago, and Hong's extended family are there. While both have M.Arch. degrees from Harvard, they still look to Korea for an empirical education on how to design sustainably in a dense city. "Korea has very little land and energy resources," says Park, "so there's a consciousness about using energy in smart ways." Hong adds, "It used to be that when Asian cultures were developing, they borrowed from the West. Now the West borrows from the East. It's about creating modern designs with ancient building stock."

One of SsD's projects, HBNY in New York City, goes a step further in maximizing dense living. The architects researched occupancy levels in the city, and found that many buildings spend months empty, due to traveling residents. They created a loft space that three families could purchase together and share, with flexible areas that could change according to need. "We're amazed at how receptive people have been to the solutions we've been presenting," says Hong. With plans to design a LEED-certified, 7-story multifamily building in Jersey City, New Jersey, and a collaboration with a large Korean urban-planning firm in the works, it seems SsD is full speed ahead. *Ingrid Spencer*

For more photos and projects by Single Speed Design, go to archrecord.construction.com/archrecord2/.

HBNY (Parenthetical Space), New York City, 2006

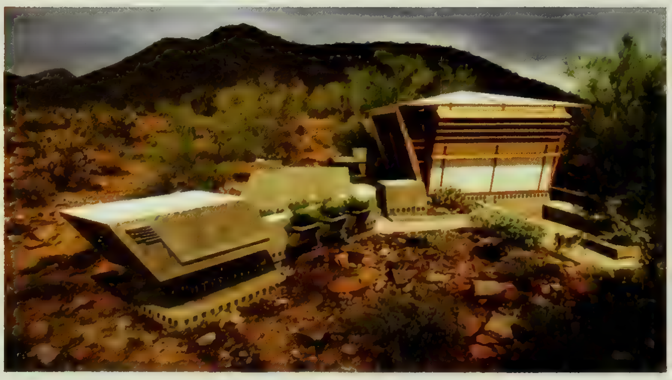
HBNY offers a solution to urban dwellers. Operable, parenthesis-like divisions with metal-mesh screens let 12 users territorialize their changing patterns of living while sharing a single apartment.

Valentine Houses, Cambridge, Mass., 2003

These three town houses address boundaries between inside and outside, private and community. The project incorporates double-height interior/exterior spaces, cantilevered garden balconies, and occupiable shared roof planes.

Work

Desert shelter explores Wright's design principles



Trevor Pan stretched "sunbrella" fabric over wood beams to create a sleeping shelter at Taliesin West. At the corners, open louvers provide natural ventilation.

During their first year at the Frank Lloyd Wright School of Architecture, students design a shelter capable of comfortably housing a person in the Arizona desert at Taliesin West, where the school holds winter sessions. Constructing it is optional, though, and most people complete their huts within a few months. Trevor Pan spent 400 days, stretched over two years, working on his project, and even remained at school to finish it after graduation.

What took so long? Pan explains that his shelter, dubbed 3 Desert Way, was his first built project—a labor of love. But the 24-year-old Colorado native is also in love with architecture, which he reverently spells with a capital A; he refers to it in the feminine gender, moreover, as though Architecture were a ship or a woman. "Architecture is an ideal," Pan explains. "It's a nice way of personifying it, I guess you could say, by calling it 'her.' " In its ideal form, he adds, architecture produces buildings that can exist in only one location, made of materials taken from the earth nearby: an organic, holistic approach.

Organic design sports the "green" label today, but Wright was working this way a century ago—so for Pan, there was no better place to study than at the school that Wright himself founded. "When I first visited, I realized this was the place," says Pan, who received his master's degree there in May. "Seeing how the building and the landscape are one thing was a life-altering experience."

Also life-altering was 3 Desert Way, a Wright-inspired bungalow consisting of only one, 100-square-foot room. Pan maximized every inch, adding built-in seating for twelve and a foldaway bed. Outdoors, he landscaped a 150-square-foot patio, more than doubling the shelter's livable area.

Frank Henry, Pan's mentor and the school's studio master, explains that the shelter assignment explores Wright's "learn by doing" directive. "You learn the nature of materials, their limitations, and how to attach one to another," he says. "In a traditional school of architecture, you don't have that. You may study physics and construction documents, but you don't get your feet dirty and learn what concrete really is." Most shelters soon fade into the desert, Henry adds, but Pan's dedication ensures that his will survive.

Perhaps it's no coincidence that Pan was among the handful of students who stuck by the Wright school during its recent turmoil. When the dean left in 2005, several faculty members and students also left, leading a national accreditation board to put the school on notice.

But the school is on the mend. With a new dean, enrollment is rebounding. Another reason for optimism: As interest in green architecture keeps growing, future generations will likely be drawn to learn Wright's organic principles. At least, that's what Pan expects. *James Murdock*

For more information on Trevor Pan's 3 Desert Way project, and other career-related articles for young architects, visit archrecord2's Work section at archrecord.construction.com/archrecord2/.

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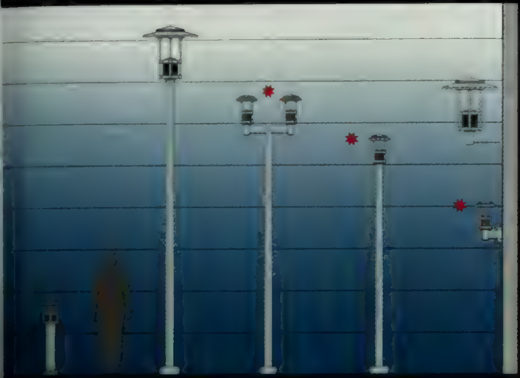

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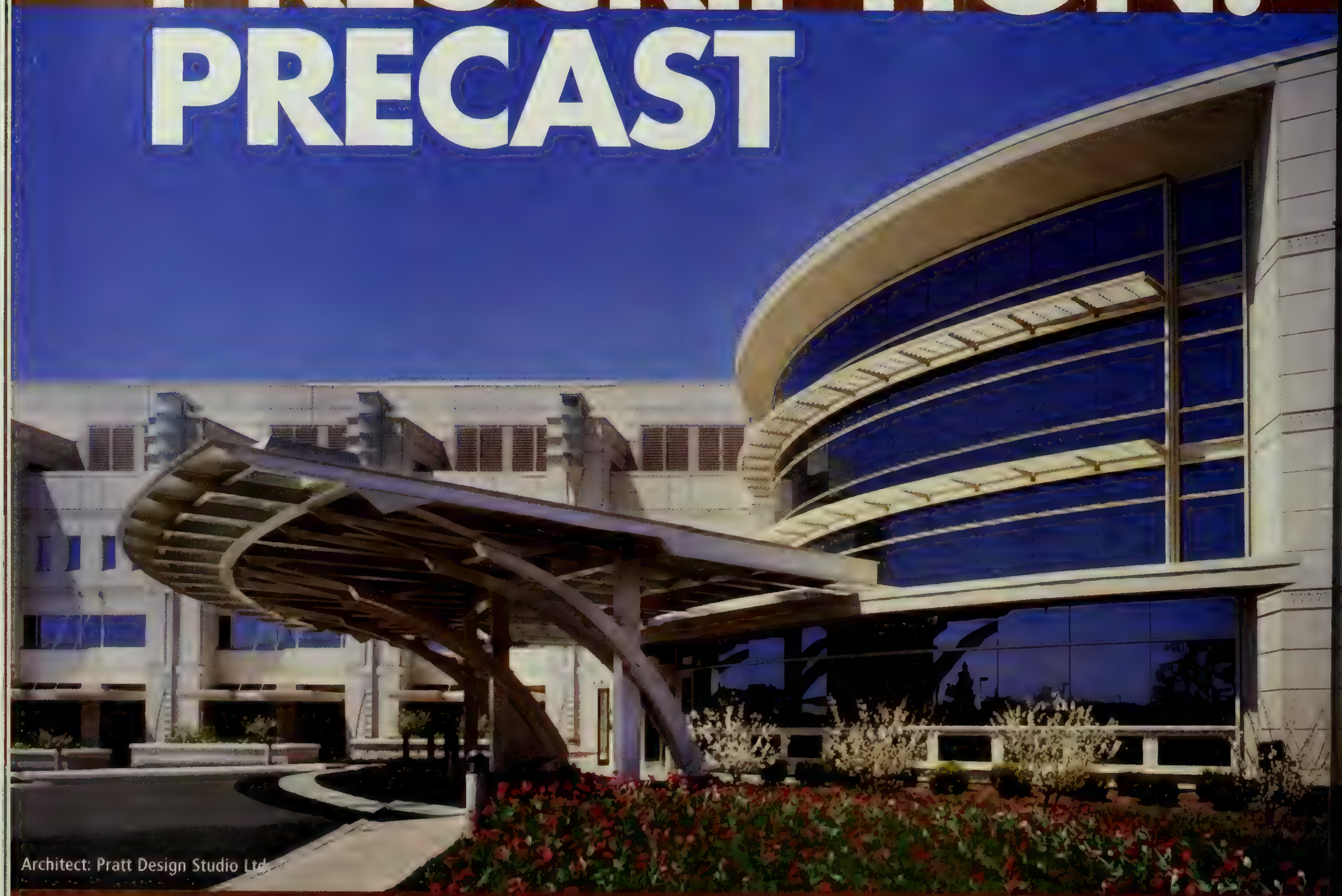

Architect: Pratt Design Studio Ltd.

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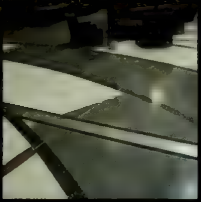
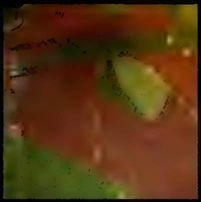
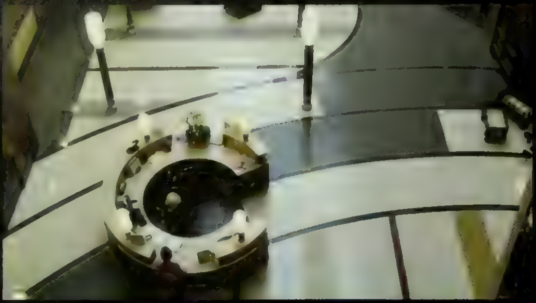
Architect
KRS, Inc.
Dallas, Texas

Designer/Artist
Maregatti Interiors
Indianapolis, Indiana



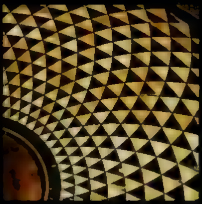




PHOTOS © DOUG SLACK

Clarian North Medical Center *Carmel, Indiana*

When Clarian North Partners decided to expand their hospital care to the suburban north side of Indianapolis, they definitely wanted to make a statement. This upscale new hospital needed a floor in the main commons area and main corridors to compliment its floor-to-ceiling artistic design. They also needed a floor rugged enough to withstand the rolling and foot traffic that a major hospital incurs. The terrazzo easily achieved the artistic quality desired by the designer, and the 3/8″ thick epoxy terrazzo with a vitrified finish gave the owner a color 22,000 square foot floor that will hold up to any traffic for many years to com



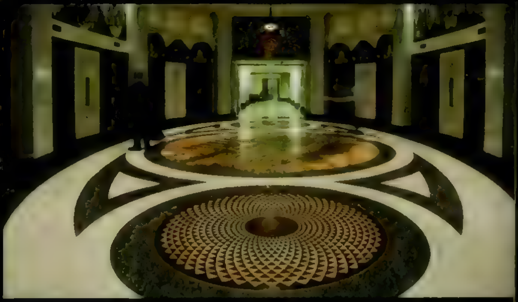
National Terrazzo & Mosaic Associatio 2006 Honor Awar

Architects
Coughlin Porter Lundeen
Seattle, Washington
Stickney Murphy Romine
Seattle, Washington

Designer/Artist
Linda Beaumont
Langley, Washington

King County Courthouse *Seattle, Washington*

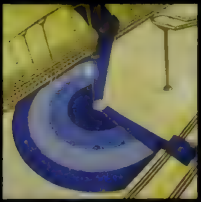
The geometric design recalls the historic patterns of the Alaskan marble used throughout the other floors of the building and also transforms this entry lobby floor into a shimmering plane, bringing light and clarity into the space. The image etched into the stone is from the March on Washington in 1963… and like an image on an old coin, it holds the essence of the photograph. There are three quotations from Martin Luther King Jr. made of waterjet cut brass letters imbedded into the terrazzo that surrounds the marble circles.

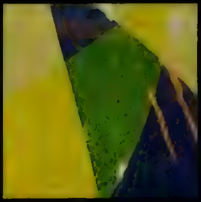


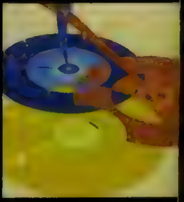
National Terrazzo & Mosaic Association 2006 Honor Award

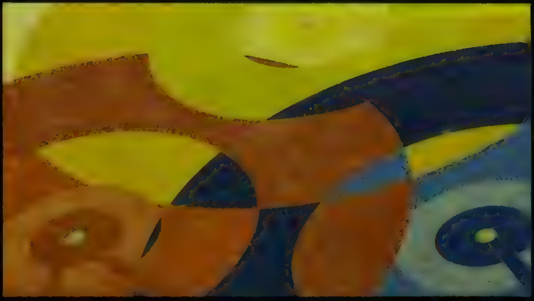
Architect
Ellerbe Becket, Inc.
Kansas City, Missouri

Designer/Artist
Clearscapes - Thomas Sayre
Raleigh, North Carolina









PHOTOS © DAVID LAUDADIO

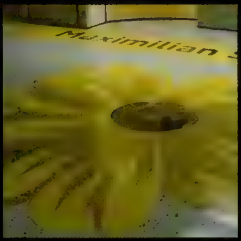
Charlotte Arena *Charlotte, North Carolina*

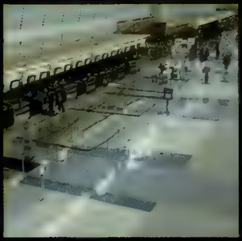
The Charlotte Arena is designed for the purpose of fun, delight, and recreation. Similarly, the space of the lobby area is also about delight. With its multi-leveled walkways, large complex volume, and a variety of lighting and colorful surfaces, the lobby space cries out for gestures that employ and activat its complexity; but also help knit its spaces together. The primary composition of the lobby floor is t bring color and movement into the space while complimenting the architectural goals of the building Derived from the physics of a bouncing ball, the terrazzo design depicts three patterns of color that roughly correspond to the reduction of the rebound of a freely bouncing ball. The three "balls" boun together in this central space then diverge and extend in different directions.

National Terrazzo & Mosaic Association 2006 Honor Award

Architects
HKS, Inc.
Dallas, Texas
Corgan Associates
Dallas, Texas

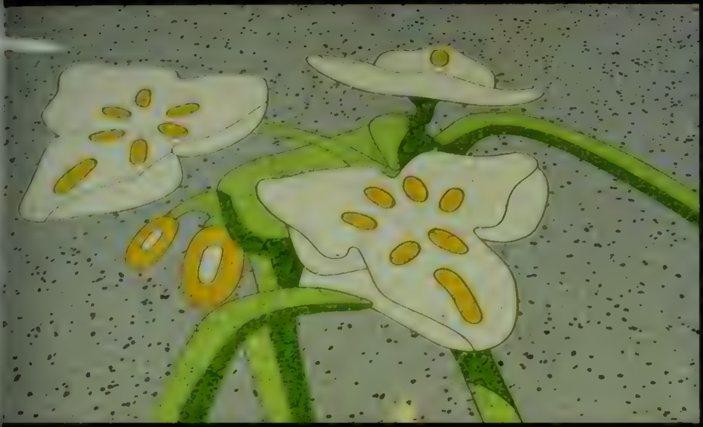
Designers/Artists
Benito Huerta
Jerome Meadows



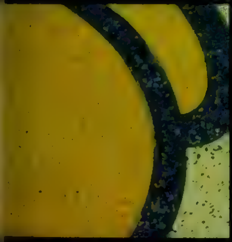


Dallas/Fort Worth International Airport International Terminal D

DFW Airport, Texas



The new International Terminal D at the Dallas/Fort Worth Airport was one of the largest construction projects in the Dallas/Fort Worth, Texas area in recent years. Overall, 11 colors were installed in a band and arc pattern. The eight levels of the parking garage were designed to incorporate eight colorful native Texas wildflowers into the terrazzo. These designs provide not only beauty, but also a color-coordinated identity for each level. The 16 parking garage lobbies used 20 bright, exotic colors in the Texas wildflower patterns. This massive yet unique terrazzo installation guarantees years of visual attraction and beauty for the many international travelers.



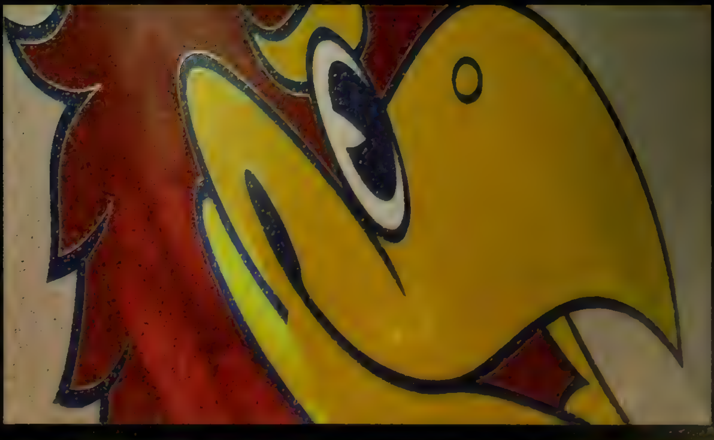
National Terrazzo & Mosaic Association 2006 Honor Award

Architect
H.O.K.
Kansas City, Missouri

University of Kansas Allen Fieldhouse

Lawrence, Kansas

The University of Kansas, with its nationally renowned basketball program, deserved nothing less than this H.O.K. designed addition and remodel of historic Allen Fieldhouse. With 10,000 square feet, this five color epoxy terrazzo floor and precast base design lent itself as the perfect flooring system to tie together both the remodel of corridors in the existing building and the new entrance/lobby and Jay Hawk Museum. The new addition features the project's centerpiece, a 26-foot tall by 25-foot wide terrazzo design of the University's famous "Jay Hawk" mascot. The use of specialty glass and mother of pearl chips, separated by ¼″ zinc divider strips make this the dominate visual effect while walking through the museum or from the balcony above.



National Terrazzo & Mosaic Association
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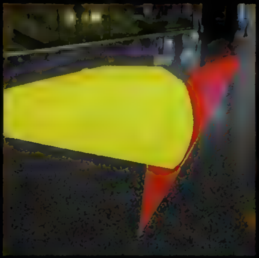
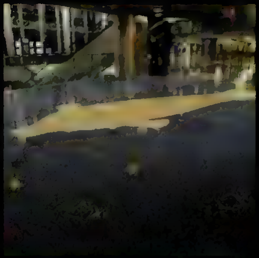
JOB OF THE YEAR

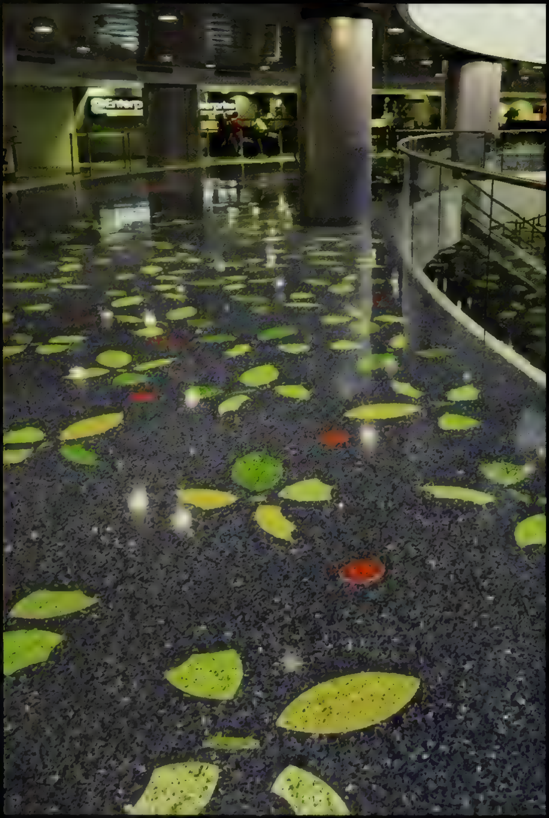
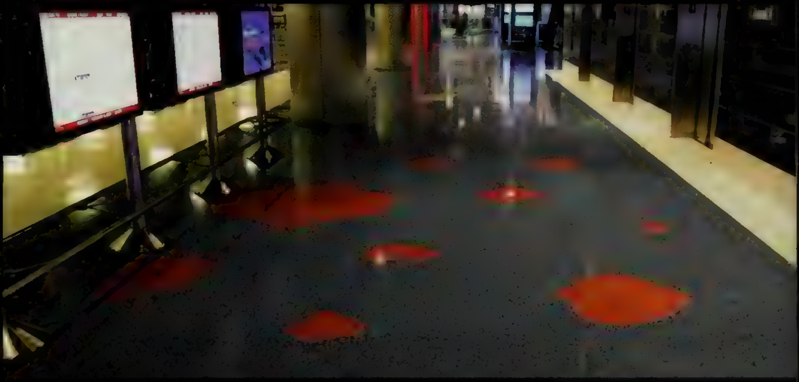
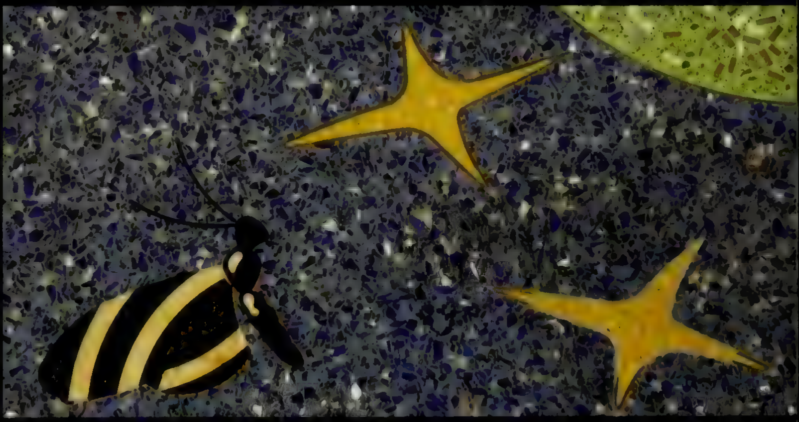



Fort Lauderdale – Hollywood International Airport Rental Car Facility

Fort Lauderdale, Florida

Architect
Spillis Candella and Partners, Inc.
Coral Gables, Florida

Designer/Artist
Clearscapes – Thomas Sayre
Raleigh, North Carolina

PHOTOS © DAVID LAUDADIO

The design of "Mangrove Islands" is based on three sectional "slices" through a computer-generated 3-D model of a mangrove island, once prevalent in the immediate area. The composition of the facility begins on the first floor with a view of the mangrove island cut below the water level just above the sandy bottom. Within the terrazzo are sections of the many trunks of the mangrove tree, which branches into small trunks and roots below the water line, creating an eccentric pattern of unusual round shapes, each depicting the growth rings. Also visible are red fish, oysters, turtle grass, burma reed grass and horseshoe crabs.

On the second level and cut higher on the trunk of the mangrov at just above the water level, the larger trunk sections of the mangrove are visible. The burma reed grass and turtle grass change shape on the second floor as they do in reality when they break into the air at the surface of the ocean. Also depicted are turtles, manatees, and even two wind surfers, all at three times life size.

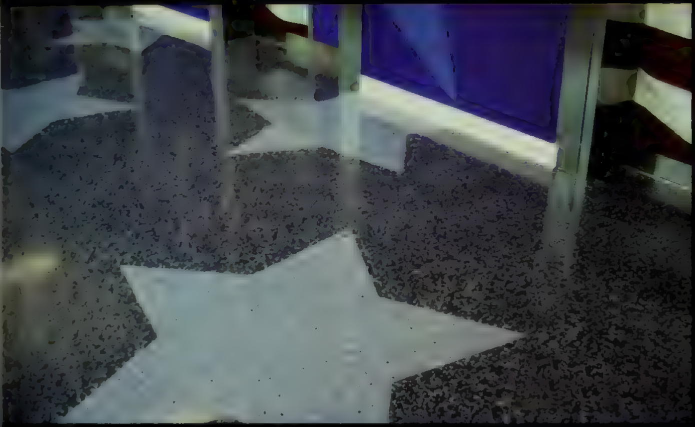
On level three, the floor depicts the canopy of the mangrove trees The small diameter branches are connected to the mangrove leaves and blossoms. Playfully sprinkled throughout the leaves are butterflies. Finally, the floor is activated by three times life size pelicans that zoom through the space.

ational Terrazzo & Mosaic Association
006 Honor Award

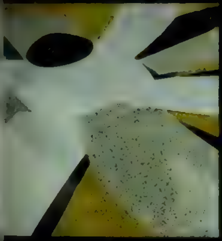
Architect
Simon Design, Inc.
Los Angeles, California

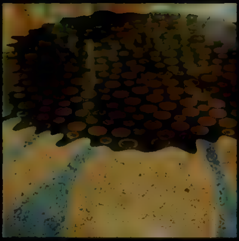
Midway Airport Parking Garage

Chicago, Illinois



The choice to use terrazzo flooring in the elevator lobbies of Midway Airport's new Economy Garage was due in part to the positive experience the airport has had in the terminal garage and in the new terminal itself. Like the new Economy Garage, the terminal garage has a floor reminder theme of Chicago landmarks. Likewise the elevator lobbies were designed to enhance the individual floor theme. However, not each floor in the terminal garage had terrazzo. The other floors were done in vinyl. The airport administrators quickly found out that the terrazzo floors not only looked much better but also were so much easier to maintain and would last a much longer time. Those factors made the decision to go with terrazzo flooring in the new Economy Garage an easy one to make.





National Terrazzo & Mosaic Association
2006 Honor Award

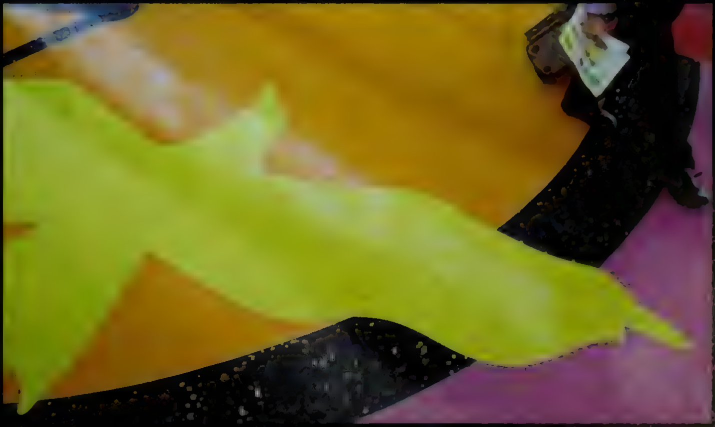
Architect
Corgan Associates
Dallas, Texas

Designers/Artists
Phillip Lamb
Susan Maglow
Dan Blagg
Nancy Lamb

Dallas/Fort Worth International Airport
Terminal Station Renovation

DFW Airport, Texas

our teams were commissioned to design the terrazzo floor of e eight SkyLink train stations. Susan Maglow and Phillip amb created a history of airplane engines and oversized exas wildflowers. Large solid aluminum components made the parts of the engines, which complimented the bright nd colorful wildflowers in the design. Dan Blagg developed "Spirit Walk" design, as well as a pattern that included iamonds, clouds, and rain. The pattern is described as 'walking air.' Nancy Lamb installed a brightly colored terrazzo floor at included designs of "birds and clocks" and "stamps and oins." Brad Goldberg created a pattern in which the West exas topography is displayed.

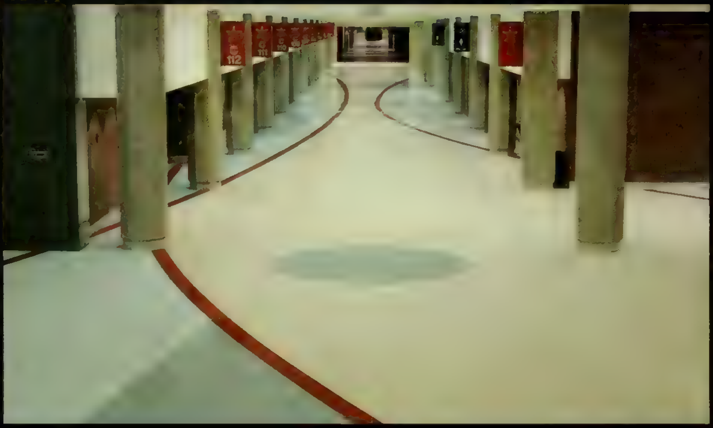


National Terrazzo & Mosaic Association 2006 Honor Award

Architect
Godsey Associates
Louisville, Kentucky

Designer/Artist
Mitchell Sanders
Godsey Associates
Louisville, Kentucky

Kentucky Fair & Exposition Center *Louisville, Kentucky*



PHOTOS © DAVID LAUDADIO

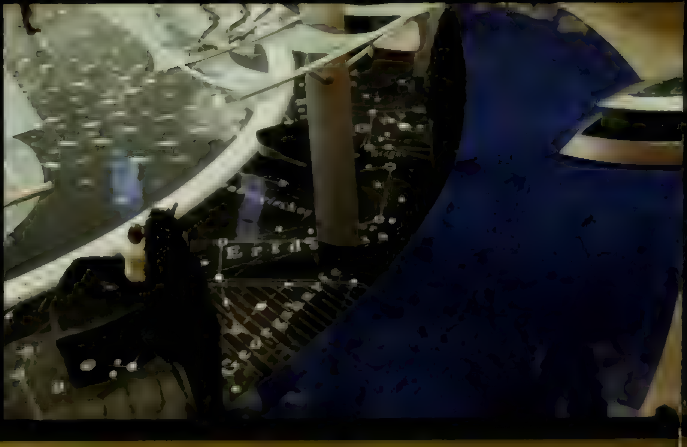
The architect used long sweeping patterns that help guide people to where they need to go. Also incorporated in the design are small circular areas dominated by plush seating to encourage conversation among the conventioneers. Simple yet effective designs make this facility flow smoothly on both the main and upper level with dramatic visual vantage points from the upper level into the main level. A large oval pattern at the escalator helps to draw visitors to its location, and real plants and comfortable seating again contribute to the social atmosphere at this facility.

National Terrazzo & Mosaic Associatio 2006 Honor Awar

Architect
JPRA Architects
Farmington Hills, Michigan

Mall at Millenia *Orlando, Florida*

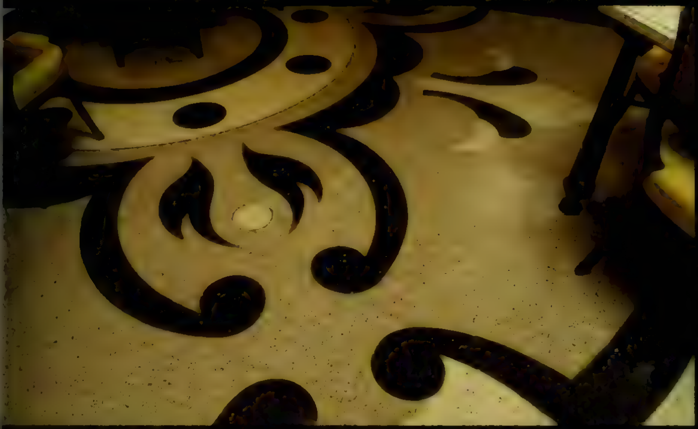
The floor honors the march of time as we measure and track time by dated calendars reflecting the movement of the stars, our sun and moon. The design team intended for the center court to be the showpiece of the mall. Visitors are able to view the design from the second floor mezzanine at various observation points. The main theme in the large circular terrazzo floor is a design with a nod to the millennium. The center court is a grand representation of constellations achieved with intricate zinc strip and solid metal designs featuring the zodiac signs, stars and Latin wording. Within the very center of the design is a swirling evolution of leaves and fish. All of this is surrounded with an accent band of a timeline created from marble mosaics in three colors.



National Terrazzo & Mosaic Association 2006 Honor Award

Architect	Designer/Artist
Butler/Ashworth Architects, LTD, LLC	*Butler/Ashworth Architects, LTD, LLC*
Las Vegas, Nevada	*Las Vegas, Nevada*

Grand Café at La Reve — *Las Vegas, Nevada*



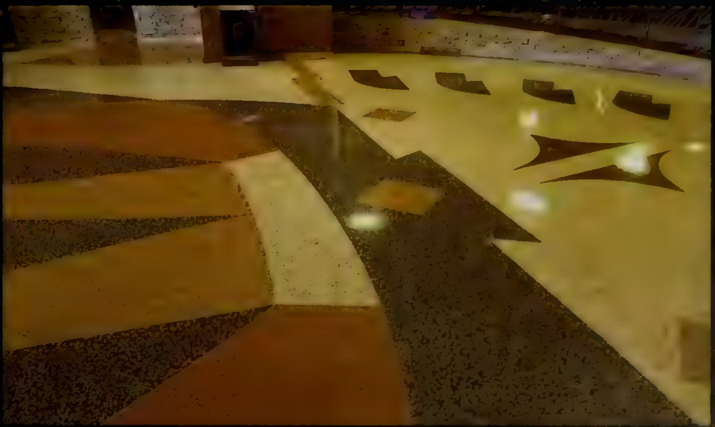
This dining room is highlighted by a terrazzo floor, which incorporates three earth tone colors, separated by ¼″ brass dividers fabricated into fleur-de-lis designs of swirls, circles, and kite shapes, with all brass intersections mitered. All of the brass design work was fabricated on site from a small-scale hand drawn sketch, which was provided by the architect. The designs continue through the curved steps, which were cast in place, with a coping type radiused nosing.

National Terrazzo & Mosaic Association 2006 Honor Award

Architect	Designer/Artist
Marnell Architecture	*Studio 808*
Las Vegas, Nevada	*San Francisco, California*

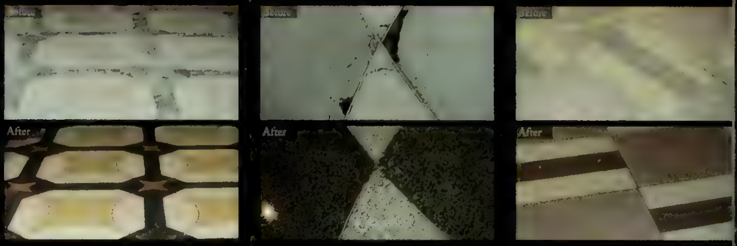
Sandia Casino Hotel — *Albuquerque, New Mexico*

This casino floor is comprised of 5 colors of terrazzo, separated y 1/8″ zinc dividers, depicting the traditional graphics of the andia Indian Tribe. Note how texture has been achieved in ach color and design, through the blending of earth toned arble and glass aggregates.



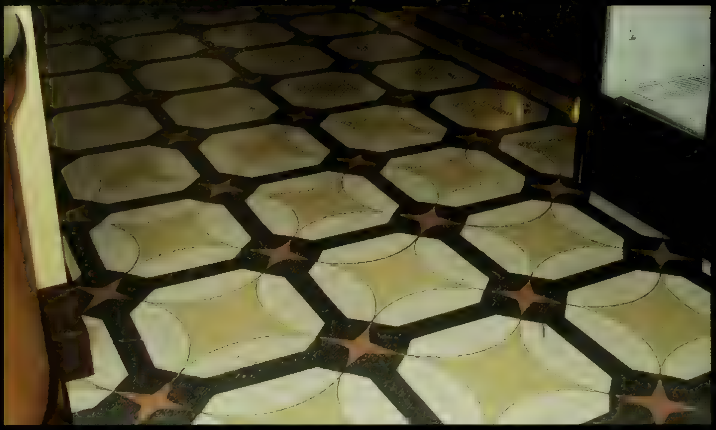
National Terrazzo & Mosaic Association 2006 Special Renovation Award

Architect
Gastinger Walker
Harden Architects, Inc.
Kansas City, Missouri



The Hilton President Kansas City

Kansas City, Missouri



When it originally opened in 1926 the old President Hotel's terrazzo was graced by elite guests such as Charles Lindbergh, President Harry S. Truman and Bob Dylan. However, the Kansas City landmark sat vacant and in a state of disrepair for 25 years. Even just walking across the former glamorous terrazz would create puffs of dust emanating through the cracks from the cavities below. The intricate detail of the original design in some areas, like the current sales office, was offset by the casual palladiana design of the Aztec Room, all worthy of restoration. The more than 10,000 square foot restoration required epoxy resin colors to match the original sand cushion terrazzo.

National Terrazzo & Mosaic Associatio 2006 Special Art Awar

Architect
Rockwell Group
New York, New York

Designers/Artists
Rockwell Group
New York, New York
Durite
Great Neck, New York

Nobu 57

New York, New York

Nobu's new location is in the heart of Manhattan and offers an oriental cuisine. Utilizing the most advanced materials alongside natural elements, Nobu's unusual appearance combines old world exotic woods such as bamboo and teak with composite stones, sea shells, canvas and natural fibers. On the first floor, the terrazzo contractor created a curved serpentine design with alternating black and white bands featuring jade with white pebbles in black terrazzo and black pebbles in white terrazzo. The second level incorporates cut sections of bamboo "O" rings embedded in black obsidian composition for the black color, and white Quartzite for the white color. To fully appreciate the Nobu project, you not only have to see it up close, but also run your hands over the floors and walls to believe your eyes.

Party on! How public space works when a million people show up

Critique

By Robert Campbell, FAIA

I happened to be in Berlin in July during the weekend of the World Cup finals. I didn't notice, when I planned the trip, that I'd chosen World Cup weekend. I'm an American. We don't know from the World Cup. I suppose they don't talk much about the Super Bowl in Tanzania and Portugal either. But not going into a frenzy over the World Cup is part of what makes the U.S. today feel a little isolated from the tightening weave of global culture.

Berlin, anyway, was a revelation. You forget sometimes, living in America, how wonderful the public life in a city can be. I'd always thought of Berlin as a party town, but this was something else. For the Cup, the city transformed itself into one huge public celebration.

During the World Cup in June and July, the city of Berlin used its great public spaces, such as the area around the Brandenburg Gate (above), as outdoor venues for celebrating soccer victories and life in general.

Outdoor living

Bars and restaurants were jammed, of course, with TV-bewitched fans. But it went much further. People moved their own TVs outdoors, invited their friends, and hosted impromptu sidewalk suppers while they watched the games. Bunches of young guys marched around shouting slogans and singing victory songs, all in a good-natured, unthreatening way. Tourist boats on the river Spree responded to these slogan shouters by sounding their horns in sympathy. National flags were everywhere, not only filling the air but also worn as shawls or hip wraps. (Will our bizarre Congress really attempt to ban such playfully innocent uses of the American flag?)

The great east–west street that splits the Tiergarten, Berlin's central park, was closed for the eastern half of its length and converted into a linear carnival. The Berliners called it, in English, the "Fan Mile." An unbroken row of booths lined it on both sides, selling circusy food and football mementos. There were such oddball attractions as a site where, for a euro, you could get your picture taken with two cheerful young women who wore only paint (national colors, of course) above the hips.

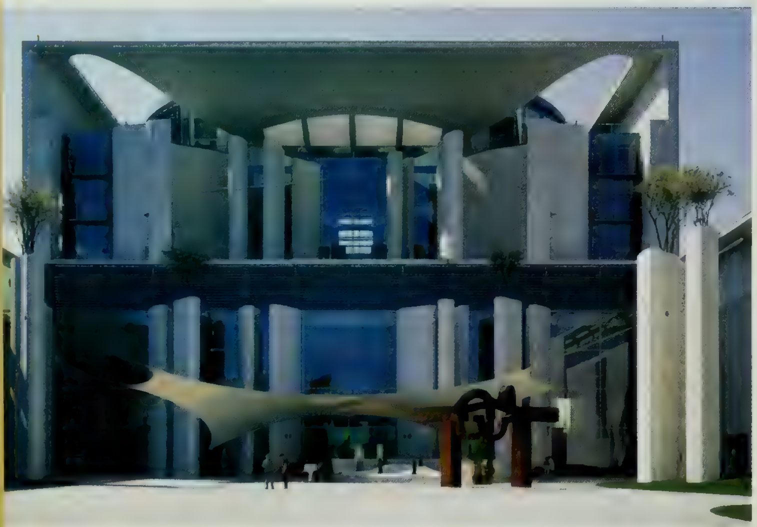
Why such a wealth of public life? Most of the reasons are obvious. Berliners, like other Europeans, live in smaller quarters, on average, than Americans. They therefore move out into the pubic realm as an enlargement of the living room. They seldom have air-conditioning, so the outdoors beckons in the hot summer. As in other European countries, taxes tend to be higher than ours, and government invests in public services like transit. In the case of the World Cup, it sank a fortune into showing off the city for international visitors.

It's a paradox: Small apartments, no AC, and high taxes are not, in themselves, exactly virtues. But they all help nurture a great public world.

Contributing editor Robert Campbell is the Pulitzer Prize–winning architecture critic of The Boston Globe *and the author of* Cityscapes of Boston.

Speaking of government, it was nice to see the U.S. Embassy at long last under construction. I served as a juror in the architectural competition held way back in 1996. I've never been on a jury that came so quickly and unanimously to a verdict, only to watch as years passed while the U.S. wrangled about security issues. The building, by Moore Rubell Yudell, stands on a key site on the Pariser Platz next to the Brandenburg Gate. It's due to open in 2008.

Right across the street from the embassy is Peter Eisenman's Memorial to the Murdered Jews of Europe, generally known as the Holocaust Memorial, which I was seeing for the first time. I'm sorry to say that I thought it was a bore. It was about as interesting as you'd expect from a grid of 2,711 dark concrete blocks in the middle of a city. Pretentious and tedious, it offers a new twist to Hannah Arendt's famous phrase about "the banality of evil." Maybe that's the point, but if so, it's a purely conceptual point, not one that works experientially. Many people, in fact, don't take the Memorial seriously. They play hide and seek, or pose for snapshots in the narrow aisles, or enjoy a gelato from a terrace that overlooks the site.



The Chancellery in Berlin, designed by Axel Schultes, stands as one part of a larger complex of buildings housing the executive branch of federal government, and brings to mind the work of Edward Durell Stone.

An improbable crypt

Oddest of all, in the middle of this place in which you are supposed to lose yourself in deep thoughts and feelings, you encounter the disruptive presence of a glass-box booth where a guard stands at the head of the stairs that descend to an underground "information center." This is, in fact, a holocaust museum, which was added to the program after the original competition. It's weird to climb down into this improbable crypt that lies beneath the field of concrete blocks, near the site where Hitler's bunker once tunneled beneath the bombed ruins of the city. But once you get to the museum, your resistance is likely to melt. Brilliantly mixing archival photos, films, and text, it's a moving success in evoking the memory of the terrible days of the Nazi persecutions.

I happened to revisit Daniel Libeskind's Jewish Museum on the same afternoon as Eisenman's Memorial. I was struck by the resemblance between Eisenman's field of blocks and Libeskind's so-called Garden of Exile, an outdoor stand of 49 concrete piers in a 7-by-7-foot grid. Has everyone noticed this visual rhyme? Libeskind's piers are taller than Eisenman's, and olive trees grow from their tops, but the resemblance feels much too close for comfort.

In another part of Berlin, there's an irony for an American. While some preservationists here were, until recently, struggling to save the old Huntington Hartford Museum in New York by Edward Durell Stone, Germans were blithely building an entire executive branch of the national government (of which the German Chancellery by architect Axel Schultes is one piece) in a style that, to this observer at least, is a clear spin-off from Stone's. Here are Stone's thin, flat canopies and pencil-thin columns. It's as if the Kennedy Center had been repositioned in Berlin, then replicated until it stretched to half a mile in length. The buildings are crisp and elegant; they're artfully sited among public parks, plazas, and waterways; and they play green games with vines that climb the walls. But their stone, concrete, and glass all read as shades of bureaucratic gray. They lack materiality, too, seeming to have been built, like architectural scale models, out of some universal weightless substance.

Layers of history

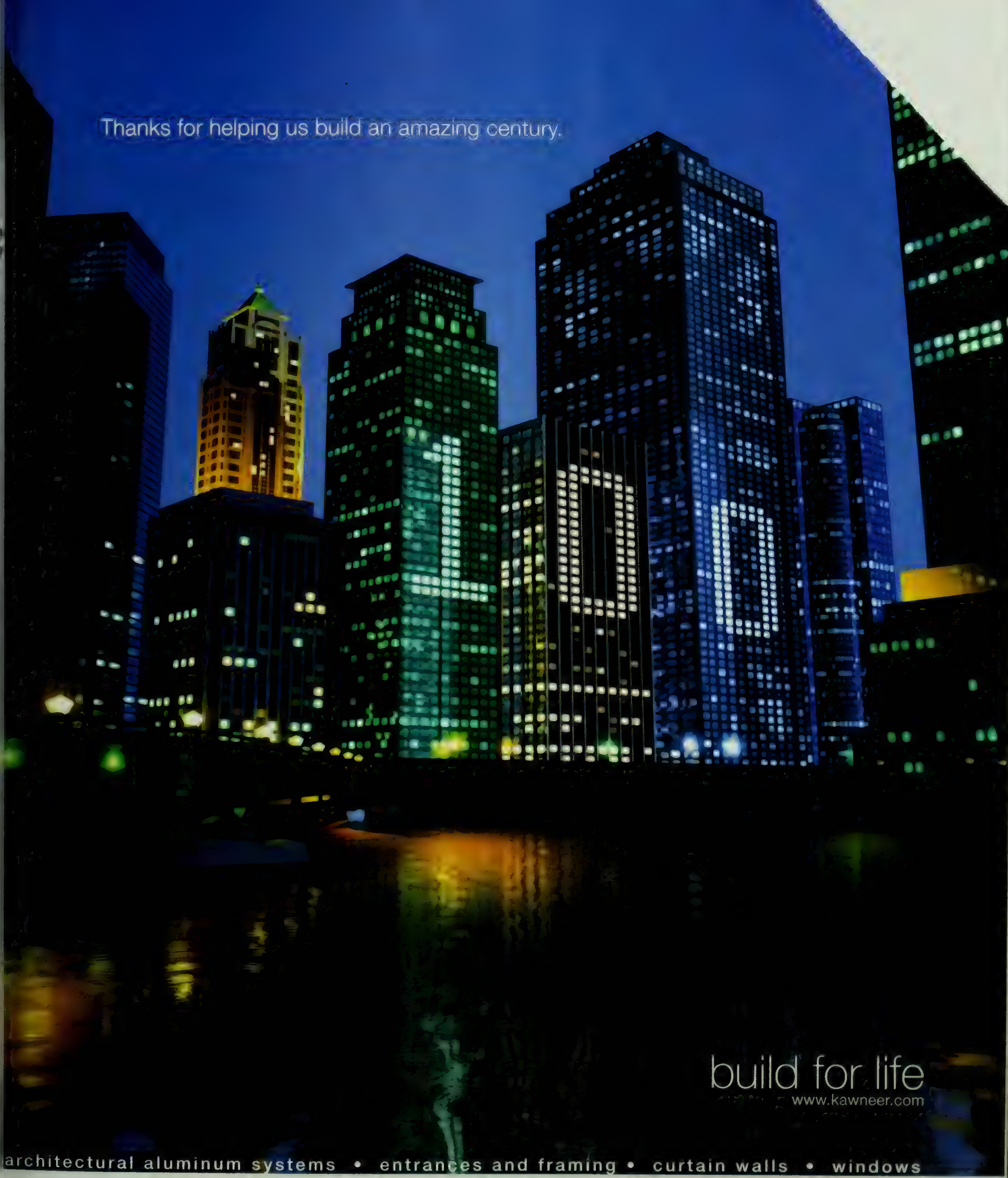
London was my other major port of call. I want to plug an amazing place I'd never heard of, which was recommended by a friend. In the Blackheath neighborhood, a short train ride from the London Bridge station of British Rail, stands Eltham Palace. Once it was a royal palace, where Henry VIII spent much of his childhood. Most of the oldest parts are in ruins now, but a relatively youthful banquet hall survives, built in the 1470s by King Edward IV. The banquet hall is spanned by one of the most dramatic hammer-beam roofs I've ever seen, and it's worth the visit by itself. But it's far from being the star player.

The star is an Art Deco mansion that arrived on the site in 1933. Stephen and Virginia Courtauld were wealthy patrons of art. They built a new house abutting the old banquet hall, which they renovated as a party space. Working with an architectural partnership called Seely and Paget, and with an interior designer named Rolf Engströmer, the Courtaulds created a set of Deco interiors that would make Josef Hoffmann envious.

The budget was, obviously, nonexistent. You certainly don't want to miss Virginia's gold-leaf and onyx bathroom. Or the stunning glass-domed entrance hall, with walls surfaced in elaborate marquetry. But what is here is not only an architectural masterpiece, but the memory of a way of life. Upstairs, you can leaf through Courtauld snapshot albums. You can watch home movies of the family touring the world on their enormous yacht, or playing among the Eltham fountains and gardens with their preppie-dressed kids, their many loyal dogs, and their pet lemur, Mah-Jongg. Jonggy, as the lemur was called, occupied his (her?) own bedroom on the second floor, with a private bamboo ladder allowing direct access to the downstairs entrance hall.

None of it lasted. In 1940 came the war. Eltham was commandeered by the British military. The Courtaulds never lived there again. In 1950, they moved to Rhodesia, today's Zimbabwe. Eltham remains as a window into a moment of taste and privilege that today seems as remote as the Romans. English Heritage owns the property now. With commendable brio, Heritage has surrounded the palace with newly designed contemporary gardens for strolling visitors, creating one more honest layer in what the late Kevin Lynch would have called, in his unforgettable phrase, a "temporal collage."

And you'll never see better domestic Deco. ■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Bucky and Noguchi are back, informing three New York shows

Exhibitions

By Russell Fortmeyer

Artist's Choice: Herzog & de Meuron, Perception Restrained. *Curated by Herzog & de Meuron. At the Museum of Modern Art, New York City, until September 25, 2006.*

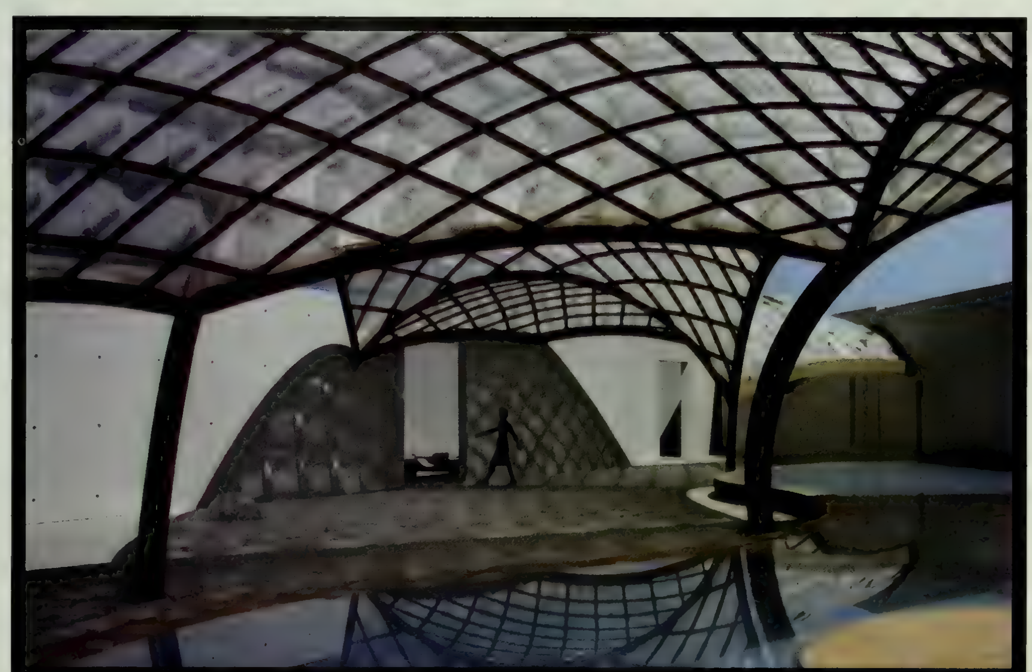
OBRA Architects, BEATFUSE! *Curated by Pablo Castro and Jennifer Lee (OBRA Architects). At the P.S.1 Contemporary Art Center, Queens, New York, through October 2006.*

Best of Friends: R. Buckminster Fuller and Isamu Noguchi. *Guest curated by Shoji Sadao. At the Noguchi Museum, Queens, New York, until October 15, 2006.*

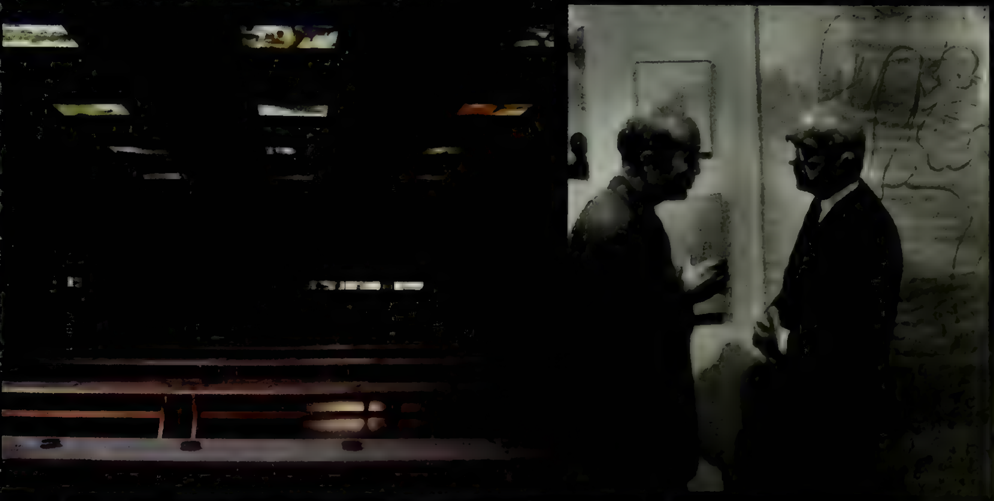
Upon the advice of his friend Buckminster Fuller (1895–1983), the sculptor Isamu Noguchi (1904–88) painted his New York studio silver in 1929. This rather innocuous gesture, undertaken to eliminate shadows, embodies the lingering mystique of the careers of these two somewhat atypical characters.

In the same year in that studio, Noguchi produced his famous chrome-plated bust of Fuller, which he described as a "form without shadows," and cemented a lifelong friendship that would result in a prolific output of ideas, architecture, art, furniture, and public spaces that still stands apart as a model for interdisciplinary collaboration.

While history calls Fuller a scientist/philosopher and Noguchi a sculptor, the two men pushed these categories to absurdity independently with projects such as Fuller's



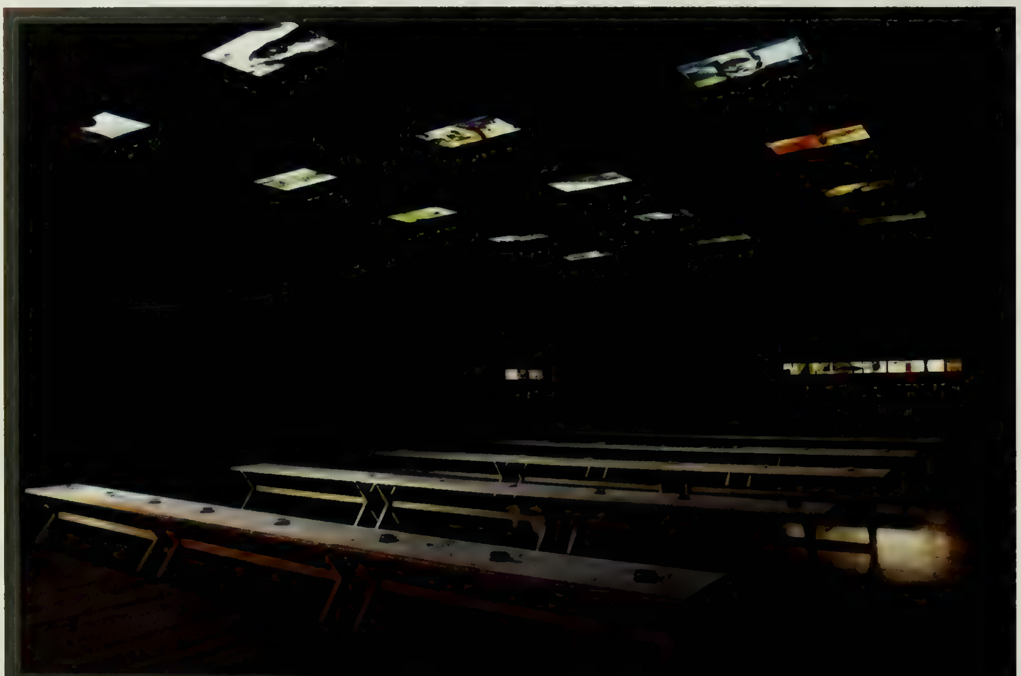
Three exhibitions explore architecture and art, all suffused with the spirit of Buckminster Fuller and Isamu Noguchi (below right). OBRA Architects' installation at P.S.1 (above) channels Fuller, while Herzog & de Meuron's conceptual installation at MoMA focuses on the larger issue of perception in an age of total distraction (below left).

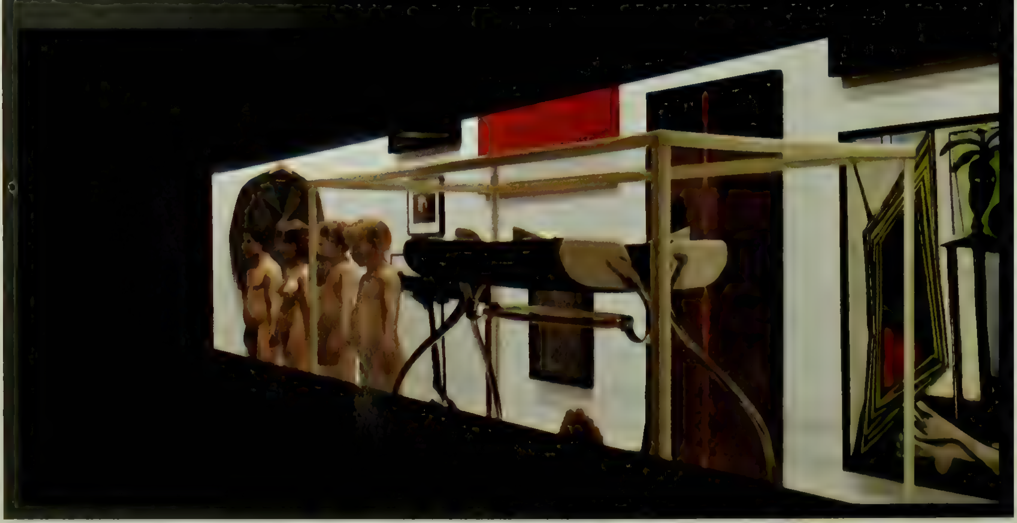


geodesic domes and Noguchi's paper lamps, exposing the limits of language and our modern need for classification. More often than not, they receive the lazy title of *genius*, which conveniently skirts the issue. Could we consider the formlessness of Noguchi's silver studio as a license for the blurring of the disciplinary lines between an architect and an artist?

The two men's friendship is the subject of a small, illuminating show, *Best of Friends*, at the Noguchi Museum in Queens, New York. The exhibition, curated by Fuller associate Shoji Sadao with obvious affection, aims to document the collaborative relationship of Fuller and Noguchi, though the influence of Bucky on Isamu seems to prevail. Their spirits, however, haunt two other exhibitions in New York: *Artist's Choice: Herzog & de Meuron, Perception Restrained* at the Museum of Modern Art, in Manhattan, and *BEATFUSE!* at P.S.1 Contemporary Art Center, in Queens.

While architecture's relationship to art grounds each show, at stake is our understanding of how architects, or to use a more inclusive term, designers, shape our experience of art through controlling its perception, setting a stage for its reception, or tossing its categories out the window and presenting us with something new. Fuller and Noguchi fall into this latter group: They embraced an optimistic Modernism, seeking new forms via problem solving, and, with true Modern naïveté, a larger truth about the world. What is Fuller's geodesic dome but a more innovative version of Mies's universal space? Noguchi's sculptures, which take primitive-looking forms into the realm of refined sensuousness, tether that space to human scale. Modernism may not have found truth, but in its attempts to do so it contributed to an explosion of new possibilities for architecture.





Herzog & de Meuron's black-box gallery at MoMA may draw in curious visitors to view the flat-screen televisions on the ceiling (above), but it reduces art to a peepshow in physically inaccessible slots along the periphery (below).

Creativity restrained

Herzog & de Meuron's installation, in which the architects were charged with selecting and installing work from MoMA's collection in a gallery of their own design, amounts to a black box, or the very inverse of the museum's traditional "neutral" white one. It exists almost as the architects' pure mediation of experience. The choice is that you have no choice. Flat-screen televisions, the ultimate medium, dot the ceiling in a grid corresponding to rows of wooden benches below.

The televisions play violent and sexual clips from movies culled from the museum's collection (e.g., *Bonnie and Clyde*, *Fargo*, or *Mean Streets*). Meant for provocation, the selected clips would strike even the most facile cinemaphile as perhaps too obvious. But it's a cool distraction from the surrounding sidelined treasure troves of some of the best art from the museum's incomparable holdings.

A choice grouping of works from MoMA's prize possessions—installed in cramped, white galleries visible only through narrow viewing slots—become curiolike, reduced to a peepshow version of grandma's attic. That is, if you can see the art; the slots are positioned for the tall among us. (Apparently ADA doesn't apply to conceptual installations.) It's a pity, too, since among the objects included are such icons as Joseph Beuys's 1970 *Felt Suit*, Willem de Kooning's 1952 *Woman II*, and Verner Panton's *Stacking Side Chair* of 1959–60, but art isn't the point in this hostile show.

To be fair, Jacques Herzog and Pierre de Meuron state in their introductory wall text that "perception"

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was their subject matter, lamenting that the museum doesn't value "perceptive attention on the part of the museum visitor." Blaming the visitor for failing to see past the celebrity architecture, recorded tours, outsize gift shops, and tasteful glitz is a bit disingenuous.

Institutional critique as an art project began to lose creative steam in the 1980s, so perhaps architecture's version comes off a bit passé in 2006. What Herzog & de Meuron proposes tells us the problem, when we really only want to see architecture fix it. It's arguable that Fuller and Noguchi would have seized this opportunity to invent a more formally interactive environment, rather than wring their hands in a multimedia installation. It's difficult to tell, as well, how this bit of research on the part of Herzog & de Meuron figures into the firm's built work, especially since its Tate Modern, in London, and the new de Young Museum, in San Francisco [RECORD, November 2005, page 104], stand as such successful examples of not entirely unconventional museum spaces for viewing art. Surely Herzog & de Meuron don't view their own patrons so cynically?

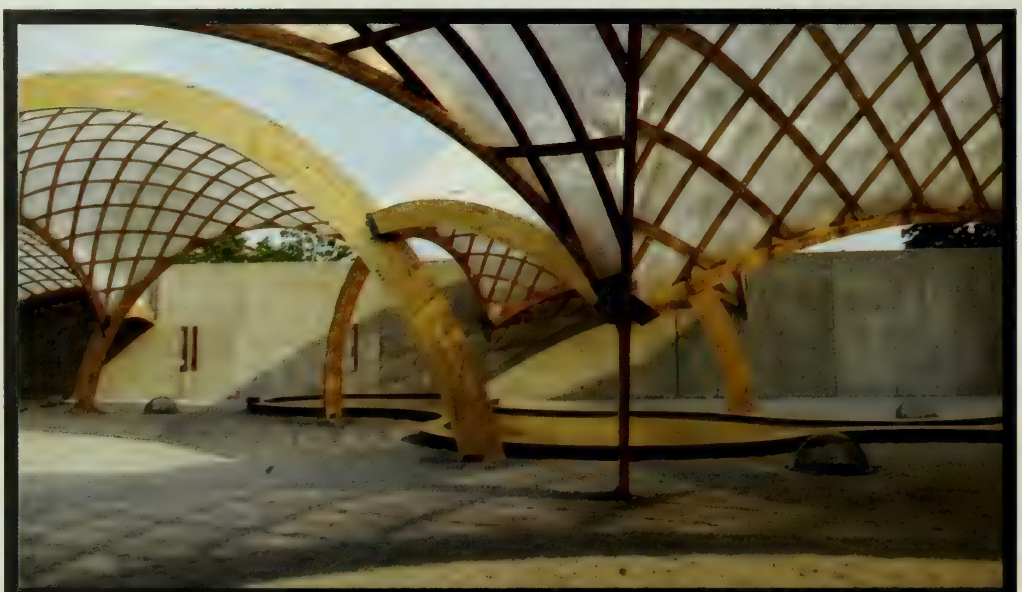
The beat goes on

BEATFUSE! by OBRA Architects, a New York–based firm founded in 2000 by principals Pablo Castro and Jennifer Lee, owes a clear debt aesthetically and structurally to Fuller's legacy. Installed in the courtyard at P.S.1 Contemporary Art Center, a Queens offshoot of MoMA, *BEATFUSE!* was the winning entry in the annual Young Architects Program, where five emerging architecture firms compete with proposals responding to the brief of bringing the beach to P.S.1's courtyard.

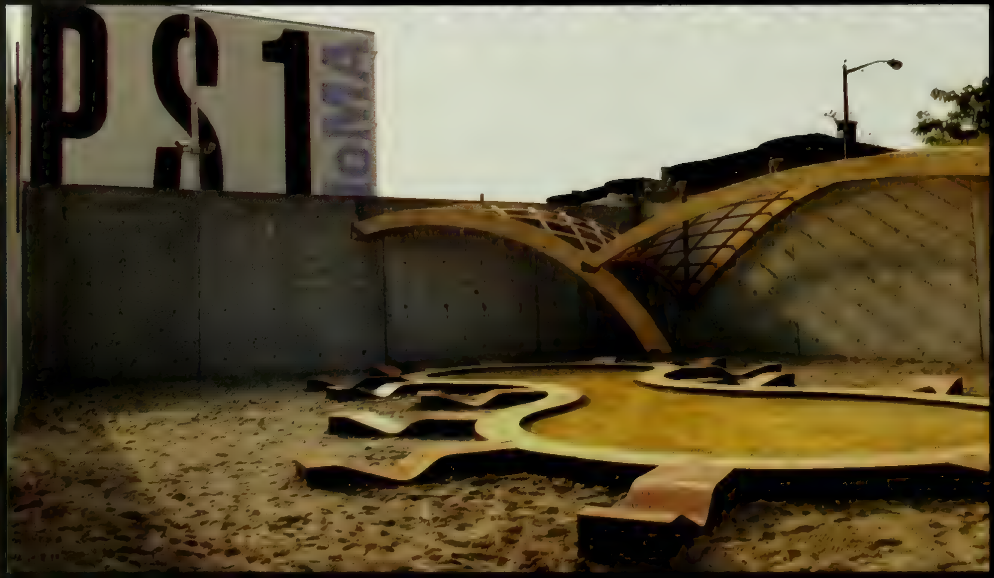
A crisscrossing mesh of plywood and polypropylene, OBRA's series of canopies dominates the courtyard like big bubbles oozing up from the water in wood wading pools below. Metal-mesh orbs, resembling disembodied eyes from a fly, spew cool mists that coat the atmosphere in a layer of intrigue. A room off to one side—a walk-in cooler lined with a silver insulated fabric and ringed with giant blocks of ice—offers respite from the pool party.

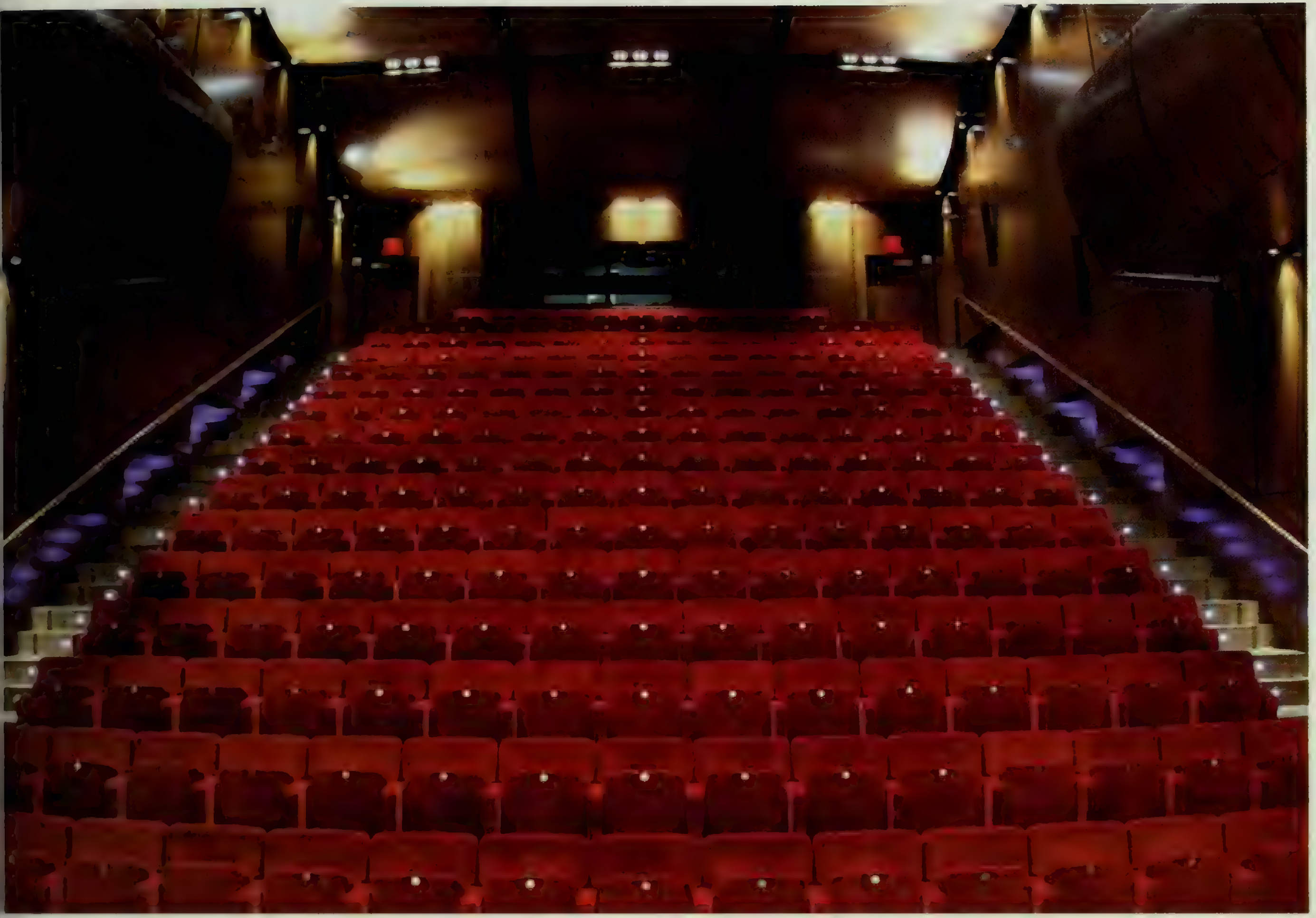
Although the program is in its seventh year, its brief has grown somewhat stale; the true test of the Young Architects Program occurs every Saturday during P.S.1's afternoon party, Warm Up, which features a multitude of bars and a changing lineup of hip DJs and live performers. Once you enter the courtyard, you encounter a fresh kind of freedom in what amounts to a hippie folly realized a few decades late—a design-enabled pleasure pavilion set up as a mood-enhancing playground that establishes a breezy tone for the art galleries inside.

It's clear OBRA and P.S.1 have a hit. While the museum traditionally relegates "art" to the interior galleries, OBRA—and, frankly, most of the past Young Architects Program winners—succeed in the spatial realization of true cultural experience in the vein of Fuller and Noguchi. One need only think of Fuller's 1967 Montreal Expo pavilion or Noguchi's 1956–58 UNESCO garden in Paris for precedents. *BEATFUSE!* is a poor man's geodesic dome amid a field of objects and pools not quite straight out of a Noguchi park. What's more, this is an architecture of frivolity absolutely necessary to the experience of P.S.1, but without a heavy curatorial hand constantly telling the visitor what to think.



OBRA Architects' courtyard canopies, constructed of plywood and polypropylene, shelter hundreds of visitors to P.S.1's Saturday parties, when the crowds are avoiding the sun (above) or wading through one of the wood pools (below).





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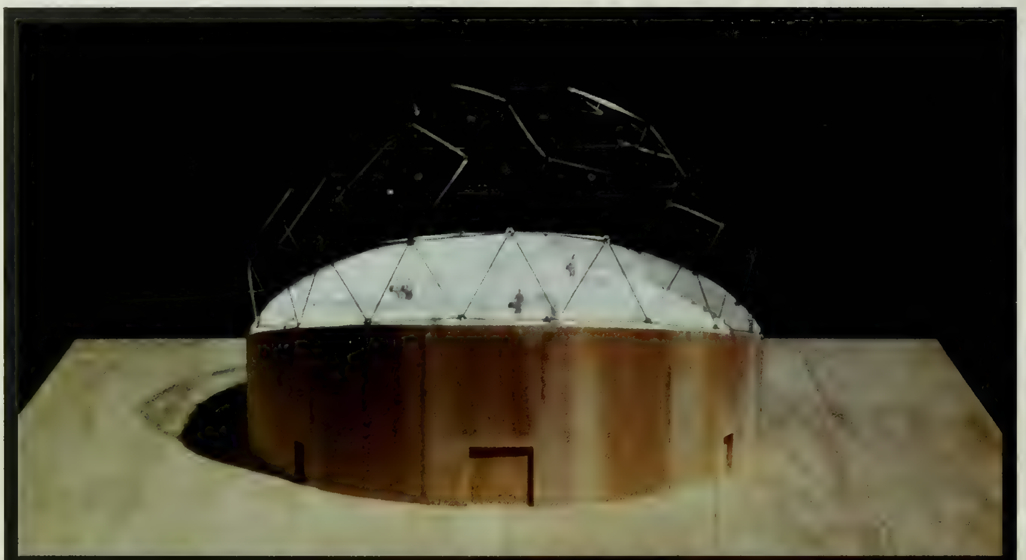
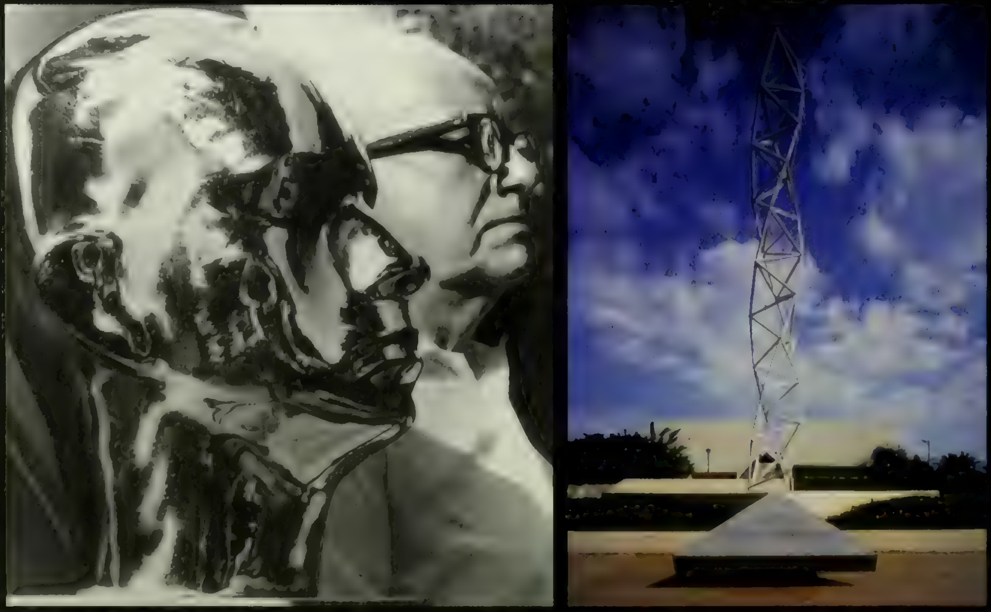
Critics may discount the throwback bubble design as a relic of the 1960s or may choose to focus on the questionable construction integrity that forced some unsightly stopgap measures, such as temporary scaffolding. But on a $70,000 budget for a fleeting project that directly engages a seen-it-all crowd with design, music, and social interaction, architecture rarely achieves such success. Part of Fuller's strategy was to find a repeatable form and to deploy it in disparate contexts productively. OBRA's installation, far from groundbreaking, is clearly positioned to grease the wheels of social interaction in a way that benefits the public's engagement with contemporary art—serving a critical need architecture rarely addresses successfully.

Friends to the end

It is tempting to imagine Fuller and Noguchi, had they started their careers in 2000 and not the 1920s, making the P.S.1 scene. They most certainly would have approved, especially given the fact the two of them met in a New York bar. You can't wander around the four galleries of their exhibition at the Noguchi Museum without being struck by a sense of their obvious love of life, from Fuller's 1928 *Dymaxion House* to Noguchi's 1986 *Slide Mantra*, a snakelike shell of marble that doubles as a children's slide, produced for, of all serious things, the Venice Biennale.



Noguchi's 1976 design for the unbuilt Martha Graham Dance Theater (above) and his 1985 Challenger Memorial (below right) were inspired by his friend Buckminster Fuller, shown here (below left) with his 1929 bust by Noguchi.



The continuing influence of the two men on architecture and design manifests itself in the way Noguchi, having had an almost Picasso-Braque-like relationship with Fuller, adapted Bucky's 1959 *Tensegrity Mast*, produced for a MoMA exhibition, for his 1986 *Challenger Memorial*, in Miami, Florida. The twisting space-frame of the *Mast*, a lacelike distant cousin to Fuller's geodesic domes and Noguchi's lamps, has popped up in more than one skyscraper proposal in the past few years. Even Rem Koolhaas's summer pavilion at the Serpentine Gallery in London's Hyde Park, a large balloon floating on a circular structure, owes its genealogy to some degree to Fuller and Noguchi. Koolhaas has made a career out of reinventing the stalled projects of Modernism, Fuller's among them. His Office for Metropolitan Architecture's Seattle Public Library [RECORD, July 2004, page 88] is, to some extent, a contorted mesh of Fuller structural members wrapping spacious, free-form Noguchi interiors.

While these three shows may strike us as mismatched in curatorial reach, theoretical purpose, and certainly in installation, they are nevertheless related in the questions they pose about the role of the attentive museum visitor and the view architects' hold of their adoring public. OBRA, Noguchi, and Fuller appear, in this light, to be rather optimistic about their audience's capacity for understanding the truths their work may unfold. As interesting and chic as Herzog & de Meuron may seem with its critique of the viewer who must be wooed away from the pops and bangs of contemporary Hollywood schlock and back to the museum, the architects nevertheless come off as cold and condescending. While idealistic "larger truths" may seem a little obsolete after Fuller and Noguchi, the silver lining of our loss is architecture's continuing ability to investigate this disappearance. ■

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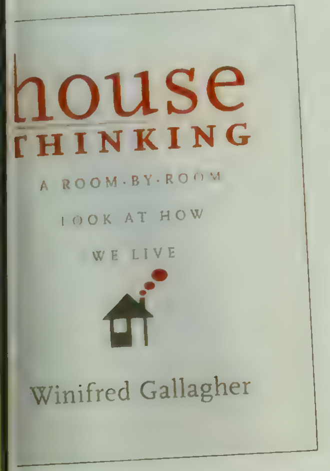
Authors explore what makes a room or a building feel right

Books



ouse Thinking: A Room-by-
oom Look at How We Live,
y Winifred Gallagher. New York:
arperCollins, 2006, 352 pages,
25.

Vinifred Gallagher could as easily
ave titled this book *House Feeling.*
he writes that feeling at home in
ertain houses "has less to do with
esthetic fashion than with evolu-
onary, personal, and cultural needs
f which many of us are mostly
naware." She examines how deci-
ions about home design can bring
ut our best selves, and, not unlike
edicine or a hot cup of tea, "can
ake us feel better."

The book focuses on two ques-
ons: How do the decisions we
ake about our domestic world
oth reveal and influence our inner
orld, and how can we make better
hoices? Gallagher contends that
o matter who we are, we can
ount on a few invariable design
rinciples, most notably, what Wright called "perching and nesting." The author also argues for character, as achieved through nooks, alcoves, unconventional windows, custom woodwork, fireplaces, inviting porches. She favors tradition and craft and often derides avant-garde design for emphasizing novelty and art over comfort and practicality. Overall, she writes, your home should "support your identity, foster privacy and sociability, buffer you from stress, and connect you to the larger world."

Gallagher moves from room to room, offering a bit of history, a little psychology, and some decorating tips. Her passage on entries and plans starts at Monticello, which Jefferson, "with a psychological insight that matched his architectural talent," filled with artworks and 28 Windsor chairs arranged to force visitors, waiting for the great man, to marvel at his taste.

From there, Gallagher proceeds to an 1870s Stick Style New Jersey "cottage" designed by Frank Furness. "For status-conscious Victorians," Gallagher writes, Furness tailored a tightly regulated front hall, "a screening station beyond which many never passed." Her tour also stops in Longfellow's dining room and in the bedrooms of Edith Wharton and Hugh Hefner. She counsels that living rooms "should say sociable and personal"; dining rooms should be showplaces for valued objects and describe social status; and bedrooms should be sanctuaries for rest and sex, not repositories for exercise machines and clutter. In a diverse and hectic world, such prescriptions may seem out of touch.

House Thinking makes good reading, but you might become impatient with Gallagher's repetition and quotes of social scientists asserting the obvious. The book's strength lies in the author's intuitions; she didn't have to buttress them with academic opinions. Take away the props and you would have a small book with many valuable insights. *Andrea Oppenheimer Dean*

Atmospheres, *by Peter Zumthor. Boston: Birkhauser, 2006, 80 pages, $40.*
Thinking Architecture, *by Peter Zumthor. Boston: Birkhauser, 2006, 94 pages, $40.*

"I enter a building, see a room, and—in the fraction of a second—have this feeling about it. We perceive atmosphere through our emotional sensibilities," writes Peter Zumthor in *Atmospheres.* Memorable architecture, for this Swiss architect, depends on the moods, feelings, or character that buildings convey.

These two wise, slim volumes fit together like fraternal twins. In them, Zumthor writes, often poetically, about architectural quality. An intuitionist, Zumthor is devoted to affectionately crafted objects and spaces. He writes about listening to "the sound of the space, to the way materials and surfaces respond to touching and tapping, and to the silence that is a prerequisite of hearing." While his 1996 Thermal Bath Vals in Graubünden, Switzerland (the town where he lives), has become famous in architectural circles, much of his other work—including the Swiss Pavilion for EXPO 2000, in Hanover, Germany, and in Graubünden, the 1983 Elementary School Churwalden, the 1989 Saint Benedict Chapel Sumvitg, and the 1990 Art Museum Chur—remains

less widely published, a result in part of his belief that architecture should be experienced firsthand.

Thinking Architecture is a reissue (with three new essays) of Zumthor's popular, now out-of-print 1998 publication. *Atmospheres* expands slightly a June 2003 lecture Zumthor gave at a literature and music festival in Wendlinghausen, Germany. Carefully worded (and translated), the text of the talk explains how the architect goes about creating atmosphere in his own work. He writes, for instance, about composing and balancing materials, making sure they "are attuned to each other"; about arranging spaces in "sequences that guide us, take us places, but also let us go and seduce us"; and about giving "thought to careful and conscious staging of tension between inside and outside, public and intimate, and to thresholds, transitions, and borders."

He asks rhetorically how we recognize architectural quality. There are "buildings or ensembles of buildings, both small ones and monumental ones," he writes, "that make me feel good, that make me look good, that give me a sense of dignity and freedom, that make me want to stay awhile and that I enjoy using."

Architecture, he says, is not a "vehicle or a symbol for things that do not belong to its essence." Reality, for Zumthor, lies in place and purpose. Nor does he think style has much to do with architectural quality.

"When an architectural design draws solely from tradition and only repeats the dictates of its site," he writes, "I sense a lack of genuine concern with the world and the emanations of contemporary life. If a work of architecture speaks only of contemporary trends and sophisticated visions without triggering vibrations in its place, this work is not anchored in its site, and I miss the specific gravity of the ground it stands on." Ultimately, he says, "It is our feelings that tell us whether abstract considerations really ring true." A.O.D.

Designing with Light, *by Victoria Meyers; New York: Abbeville, 2006, 144 pages, $28.*

Light suffuses our existence so completely that we forget about it until we notice how often we employ it in speech to express optimism: enlightenment, light music, light humor, light of my life, light my fire, light brigade, the light of reason, lighthearted. So writes Bruce Ferguson, dean of Columbia University's School of the Arts, in a preface to *Designing with Light*. In terms of ideas and their presentation, this book is mostly downhill from there.

Meyers offers a little history in her first two chapters, and short introductions for each of the remaining chapters on color, line, form, glass, windows, sky frames, shadows, and reflection. The book's strength lies in images that show light creating color and line and articulating form in architecture. But the material (verbal and visual) in chapters on glass, windows, sky frames, and reflection are poorly related to the subject of light. Meyers's book seems mainly a vehicle for showing interior work by her firm, Hanrahan Meyers, alongside that of Rick Joy, Steven Holl, John Pawson, Michael Bagellini, and others of their caliber. *A.O.D.*

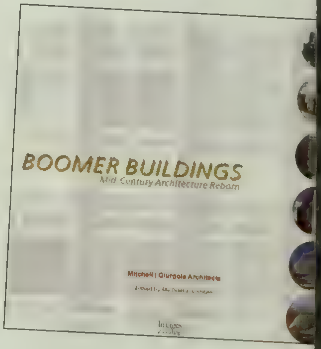
Placing Words: Symbols, Space, and the City, *by William J. Mitchell. Cambridge: MIT Press, 224 pages, $17.*

William Mitchell, a professor of architecture and media arts at MIT and the author of such books as *City of Bits: Space, Place, and the Infobahn*, and *Me++: The Cyborg Self and the Networked City*, is no academic recluse. He is fascinated by what architectural context means in today's world. Rather than a set of buildings arranged evermore along a street, context is the way "objects, narratives, memories, and space are woven into a complex, expanding web—each fragment of which gives meaning to all the others," he writes. This translates in *Placing Words: Symbols, Space, and the City* to such insights as the symbiotic relationship between Manolo Blahnik shoes and the oft-reviled World Trade Center Freedom Tower: "It looked as if David Childs and Daniel Libeskind had found the parti beside the bed of one of those *Sex and the City* girls … Both Manolo spikes and world's-tallest-building candidates depend for their dramatic effect upon breathtakingly excessive height combined with improbable slenderness."

These short essays, which first appeared in the *Royal Institute of British Architects Journal*, also suggest that celebrity architecture can be the urban-scale equivalent of a rapster's bling-bling, and that in our increasingly stratified society, the tracking bracelet Martha Stewart wore after leaving prison could be repackaged with a chic look as an upscale convenience device that would record your whereabouts but allow you to enter an airport terminal without passing through security. Sometimes Mitchell's approach is irritatingly glib, as when he distills Le Corbusier's theories into "Modernist Eye for the Beaux-Arts Guy." But Mitchell is onto something that most American architectural writers ignore: Design permeates our daily life, and it is changing just as quickly. *John King*

Boomer Buildings, Mid-Century Architecture Reborn, *edited by Michael J. Crosbie, with Mitchell/Giurgola Architects. Mulgrave, Australia: Images Publishing, 2005, 162 pages, $70.*

While postwar furniture is commanding record prices, buildings of the period are facing the wrecker's ball. The six case studies of renovations by Mitchell/Giurgola presented in this book show how cold war buildings can be made more useful, energy efficient, and attractive.


BOOMER BUILDINGS
Mid Century Architecture Reborn
Mitchell | Giurgola Architects

The copiously illustrated, sometimes redundant text explains how the architects analyzed each project's energy use, mechanical needs, curtain-wall performance, and structural stability. Crosbie writes, "In some cases, the original building's urban enmity and contextual boorishness are tamed with new wings that create hospitable courtyards. The results are born-again buildings revived at a fraction of the cost of a new facility … and at the expense of far fewer natural resources."

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owdermaker Hall at Queens ollege, because the architects esigned it while preparing a master lan for the entire 73-acre campus ith 35 buildings for 12,000 stu- ents. The architects replaced its ght metallic skin with a new, better nsulated one, operable windows, nd paneling that breaks up the uilding's quarter-mile-long wall and elates to some historic Mission tyle buildings left over from a eform school that occupied the site hen the City University of New York cquired the campus in 1937.

At Plymouth State University nd Keene State College, both in New ampshire, the architects' remodeling science buildings improved the ampus experience while also provid- g better laboratories and meeting paces, and at a K-12 school in outhern Spain they consolidated nd largely rebuilt 20 buildings.

The most impressive project of the group is the headquarters of Lighthouse International in New York City, an organization serving the visually impaired. Here, the architects replaced a six-story structure on East 60th Street with a 16-story tower and combined it with the organization's adjacent 14-story office tower, which they reclad in yellow brick with insulated ribbon windows. At the top, several stories of floor-to-ceiling glass now admit sunlight during the day and radiate intense white light at night, making the Lighthouse worthy of its name.

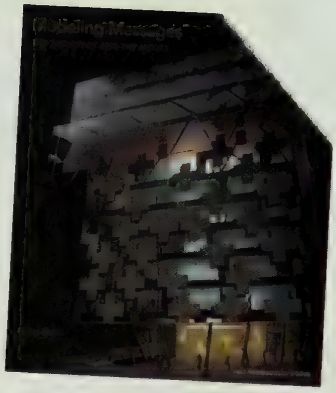
Boomer Buildings provides valuable ideas for renovations but might have been more useful if it had shown various architects' approaches. *Jayne Merkel*

Modeling Messages: The Architect and the Model, *by Karen Moon. New York: Monacelli Press, 2006, 240 pages, $50.*

It comes with the territory: architects love models and can't resist a book about them. In this one, Karen Moon tells you what you already know, that models are useful in design development, they help communicate a design to clients and others, and they can be "wildly energetic representations of architects' visual and spatial concepts—essentially sculptural form." Many also know that since the 1970s, when galleries and museums began exhibiting models, they have gained traction as collectible art, spurred in part by the advent of Conceptual Art.

Alas, Moon is skeptical about the model's future. "The larger the model, the more difficult it is to keep; the smaller, the more easily lost; the more refined, the more liable it is to damage." Virtual models, sadly, pose no such problems.

Moon writes in a clear, if flat, voice about every aspect of models, from their history to the way they make use of materials, scale, and



technical innovations. We know, however, that architects (like almost everyone else) read captions before turning to lengthy accompanying text and are likely to peruse this volume of intriguing images like a picture book. As such, it's often confusing. On many a right-hand page, you'll see a contemporary image, and to its left, one from 250 years ago. Captions frequently don't explain what they should, and images, instead of illustrating text, are often independent of it. *A.O.D.*

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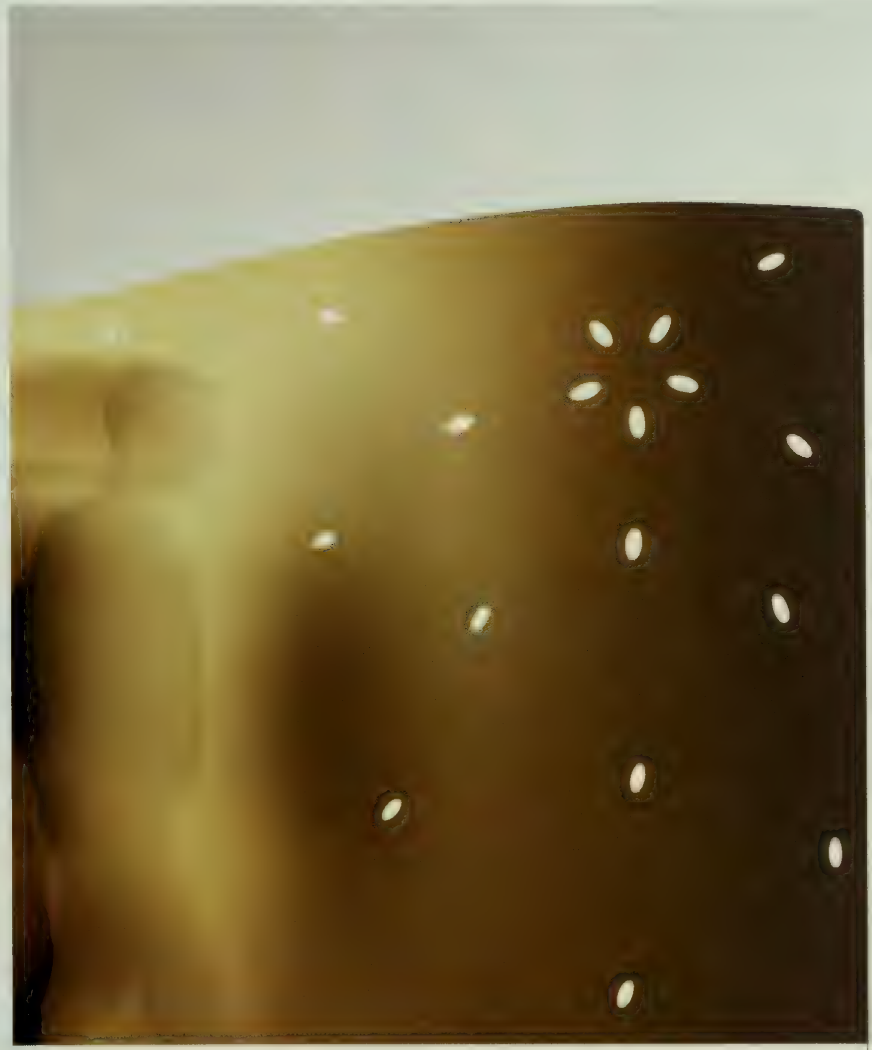

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By Rita Catinella Orrell

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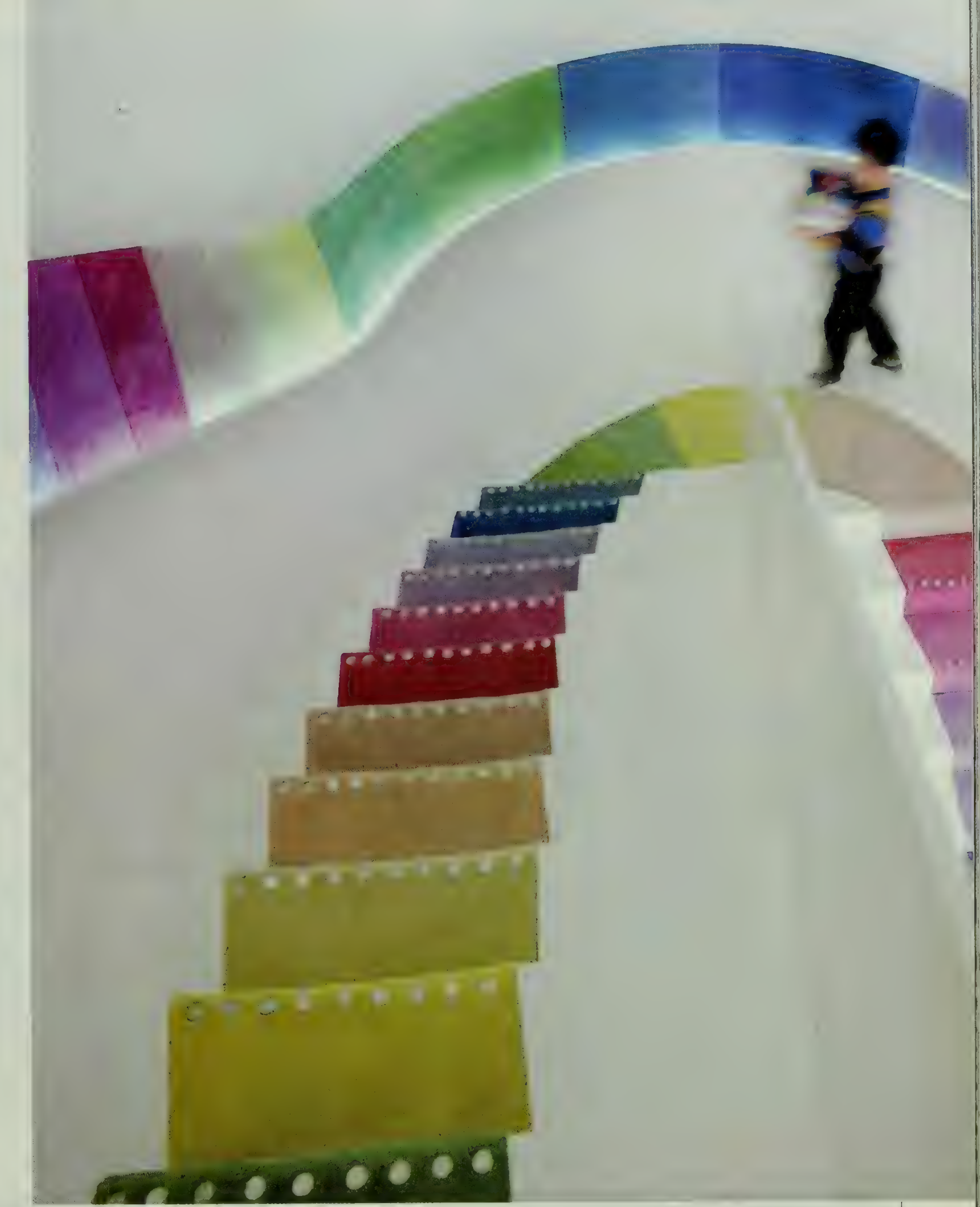
Snapshot



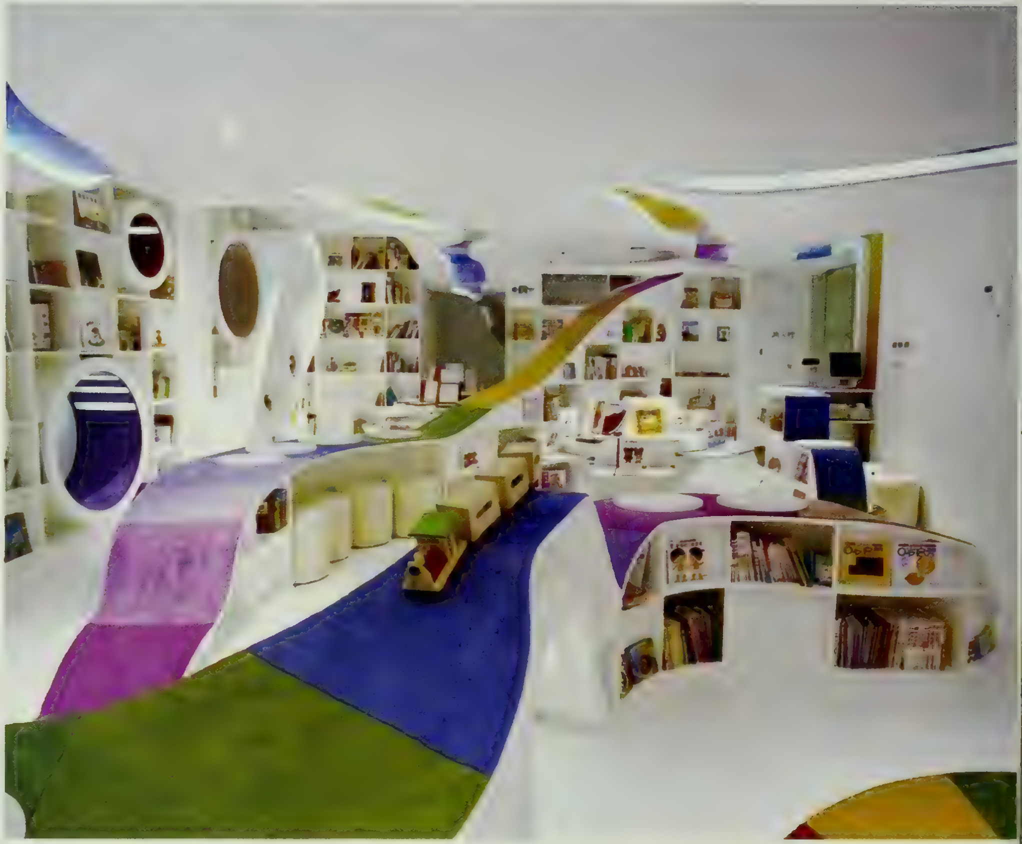
By Beth Broome

Putting a playful twist on arts and letters

Kid's Republic, a children's bookstore in Beijing, introduces young people to reading not as a labor, but as a joyful activity. The store, which dismisses strict definitions of space, mirrors the limitless possibilities of children's maginations, encouraging the kind of unbridled exploration that the world of literature can trigger.

The bookstore is in Riken Yamamoto's approximately 2-million-square-foot Jian Wai Soho project, a Beijing development of luxury high-rise apartments and low-scale commercial space [RECORD, March 2004, page 90]. Designing the interior of the bookstore came naturally to Japanese architect Keiichiro Sako, who, before establishing his own practice in Beijing about three years ago, had worked on Jian Wai Soho as a project architect on Yamamoto's team.

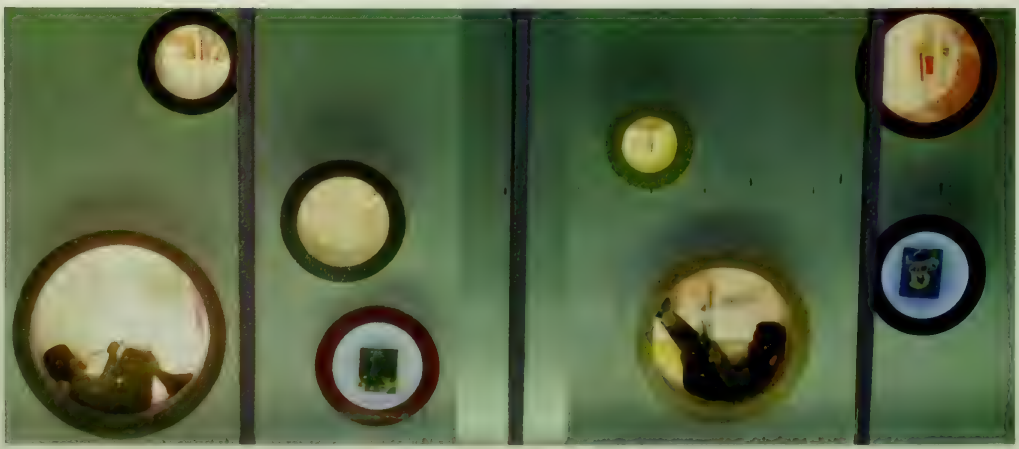
Approaching the design for the interior, Sako revisited his own childhood experiences. He realized that as a boy, he had made no separation between playing and reading. To him, reading *was* play.



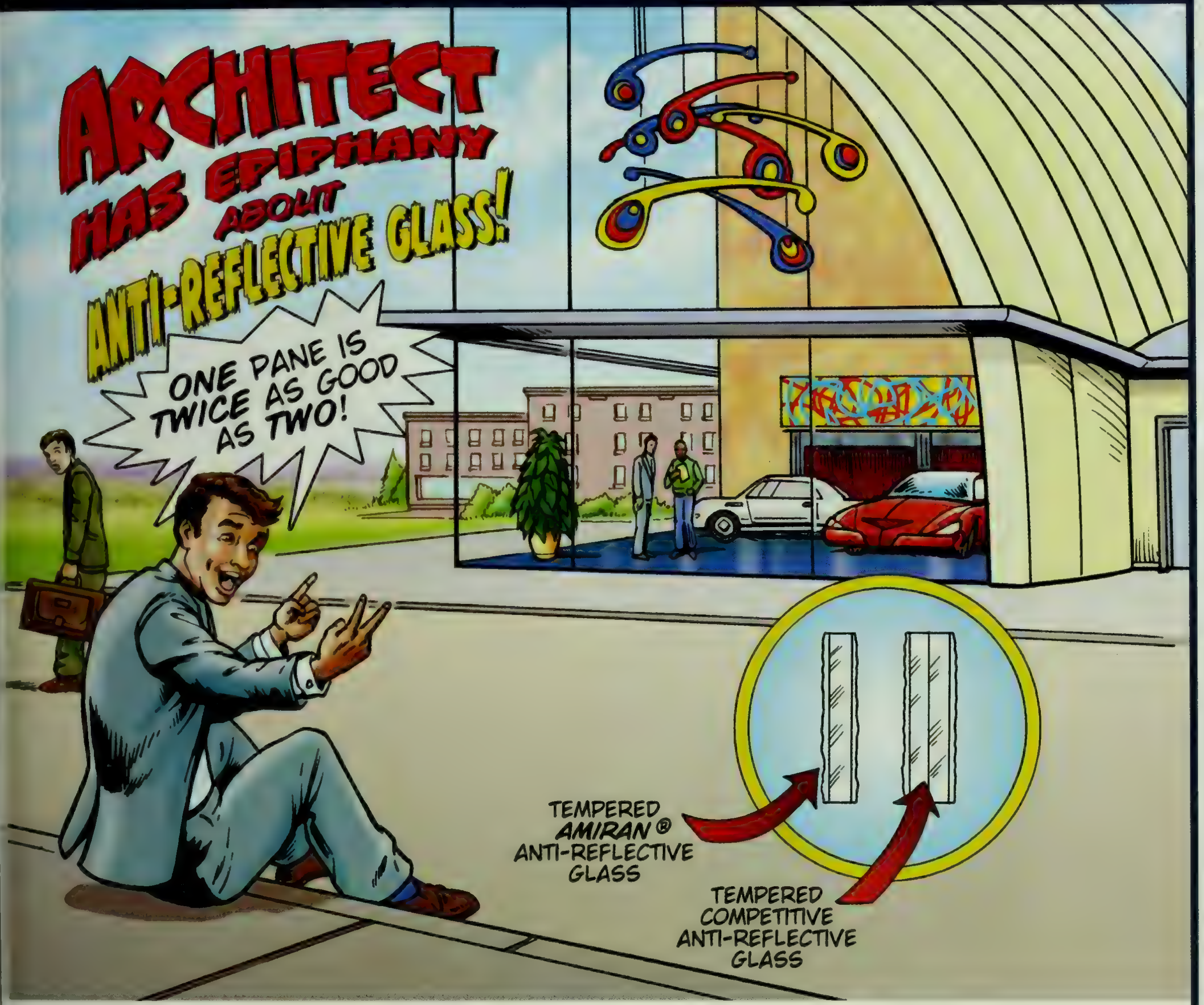
The 325-foot-long "Twisting Ribbon" carpet, which was specially created in China, winds its way through the bookshop, drawing together all elements of the space.

This awareness guided the direction of the fanciful environment Sako created for Kid's Republic, defined by two rainbow-striped ribbons of carpet. An event room for story hours is at street level, and upstairs is the bookstore. "I adopted a ribbon to connect spaces and elements that compose spaces," explains Sako. The "Wrapping Ribbon," which forms the event room, appears as a telescoped tunnel of 12 multicolored bands of carpet that widen in the middle and narrow at either end, blurring lines between floor, wall, and ceiling. A 325-foot-long multicolored carpet strip makes up the "Twisting Ribbon." This element rises up the entry stair and into the store, snaking across the ceiling, along a faux-marble floor, and through the space to form a bookshelf, table, and checkout counter, before following the handrail's path and flowing back down the stairs. Rather than establishing order by dividing the spaces into clearly defined components, Sako used the ribbons to fulfill a multitude of roles. "Sensible children do not need strict definitions," says the architect.

Sako took care to avoid intimidating, overburdened bookshelves, opting instead for manageably proportioned displays that leave room for movement and play. Various size portholelike windows provide reading nooks where children can literally curl up. Viewed from the outside, figures of young readers become decorative elements on the store's facade.



Like the merchandise it carries, Kid's Republic is intended to spark children's curiosity and provide a forum ripe for investigation. This space will bring a smile to the face of even the most serious reader. ■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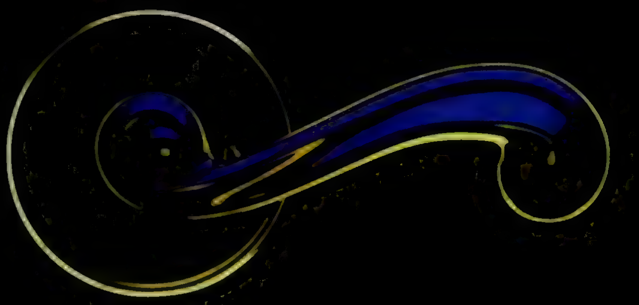

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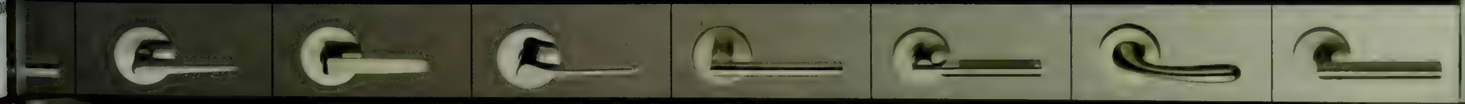

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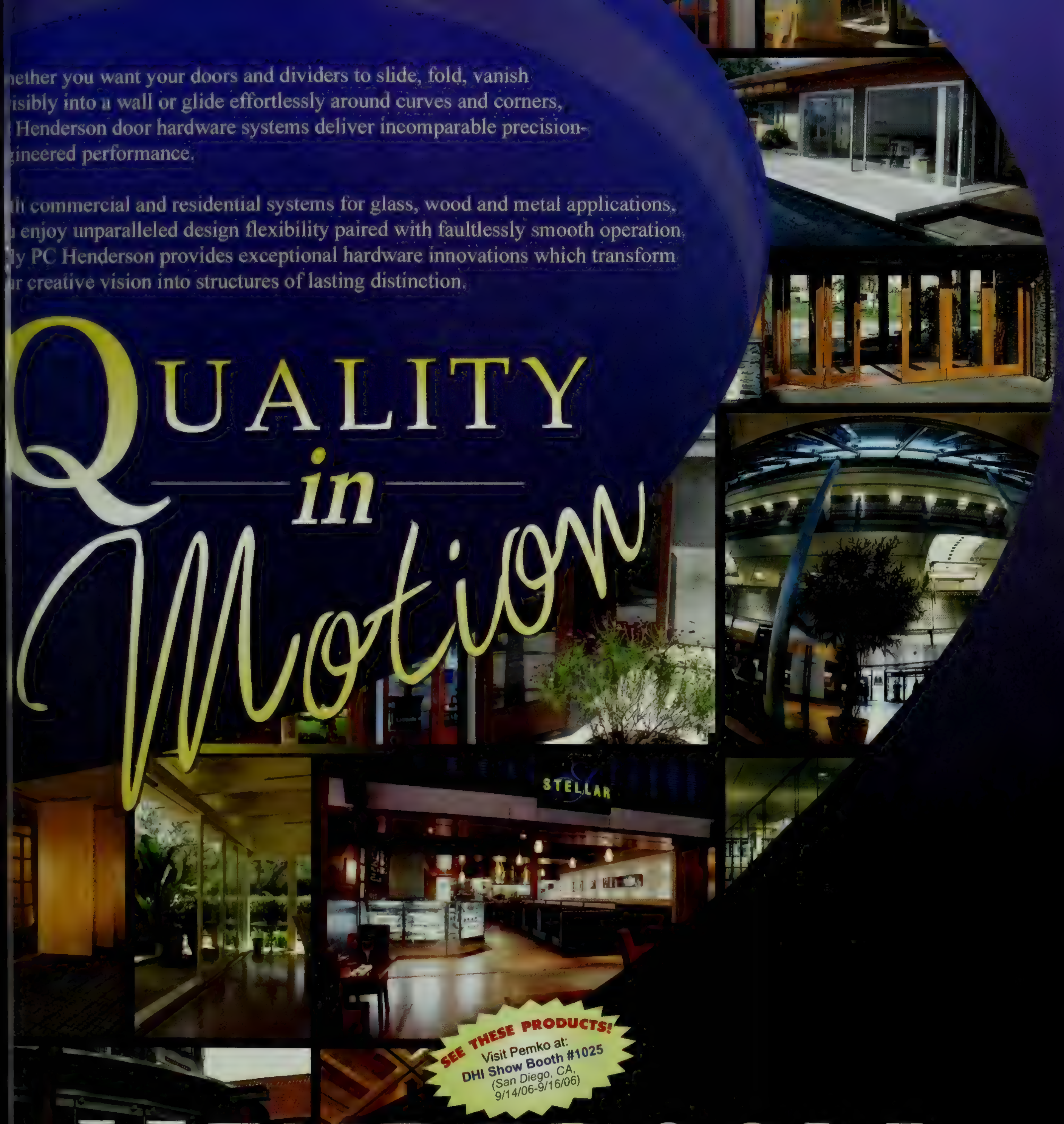

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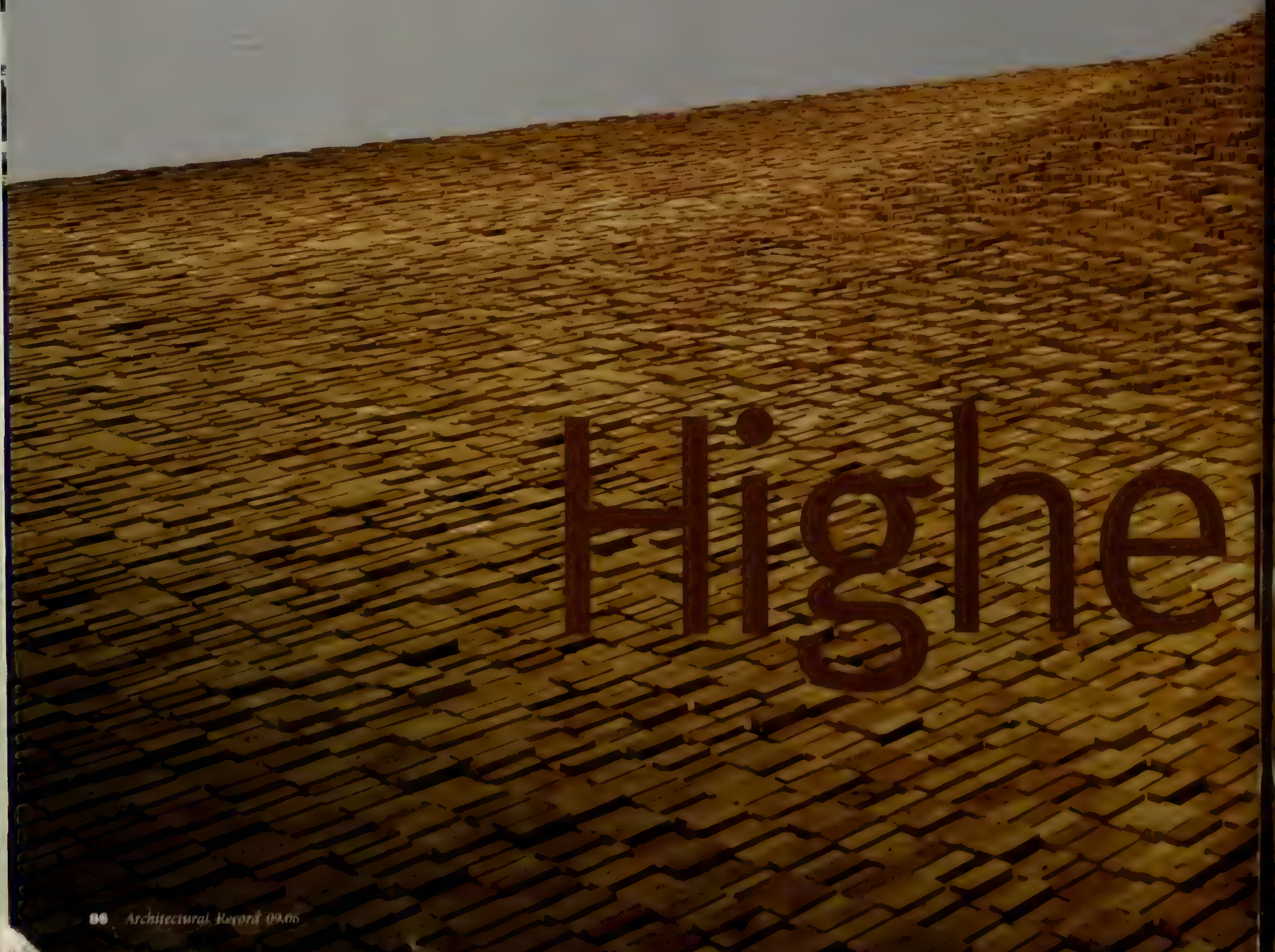
By David Sokol

THE EXHIBITION *SYSTEMATIC LANDSCAPES*, AT THE UNIVERSITY OF WASHINGTON'S HENRY ART GALLERY, IS A HOMECOMING FOR ARCHITECT AND ARTIST MAYA LIN. WHEN SHE WAS FIVE YEARS OLD, SHE SPENT A YEAR IN THE UNIVERSITY'S HOUSING WHILE HER PARENTS FINISHED THEIR DOCTORATES. "IT WAS BEHIND THE DUMP, SO THERE WERE ALL THESE SEAGULLS," SHE RECALLS. "I THINK I EXPERIENCED MY FIRST EARTHQUAKE WHEN I WAS THERE, TOO. I REMEMBER WAKING UP TO DISHES SHAKING IN THE CUPBOARD."

(continued on page 92)

David Sokol is RECORD*'s acting news editor. He writes for* Azure, Interior Design, *and* Metropolis, *and was managing editor of* I.D.



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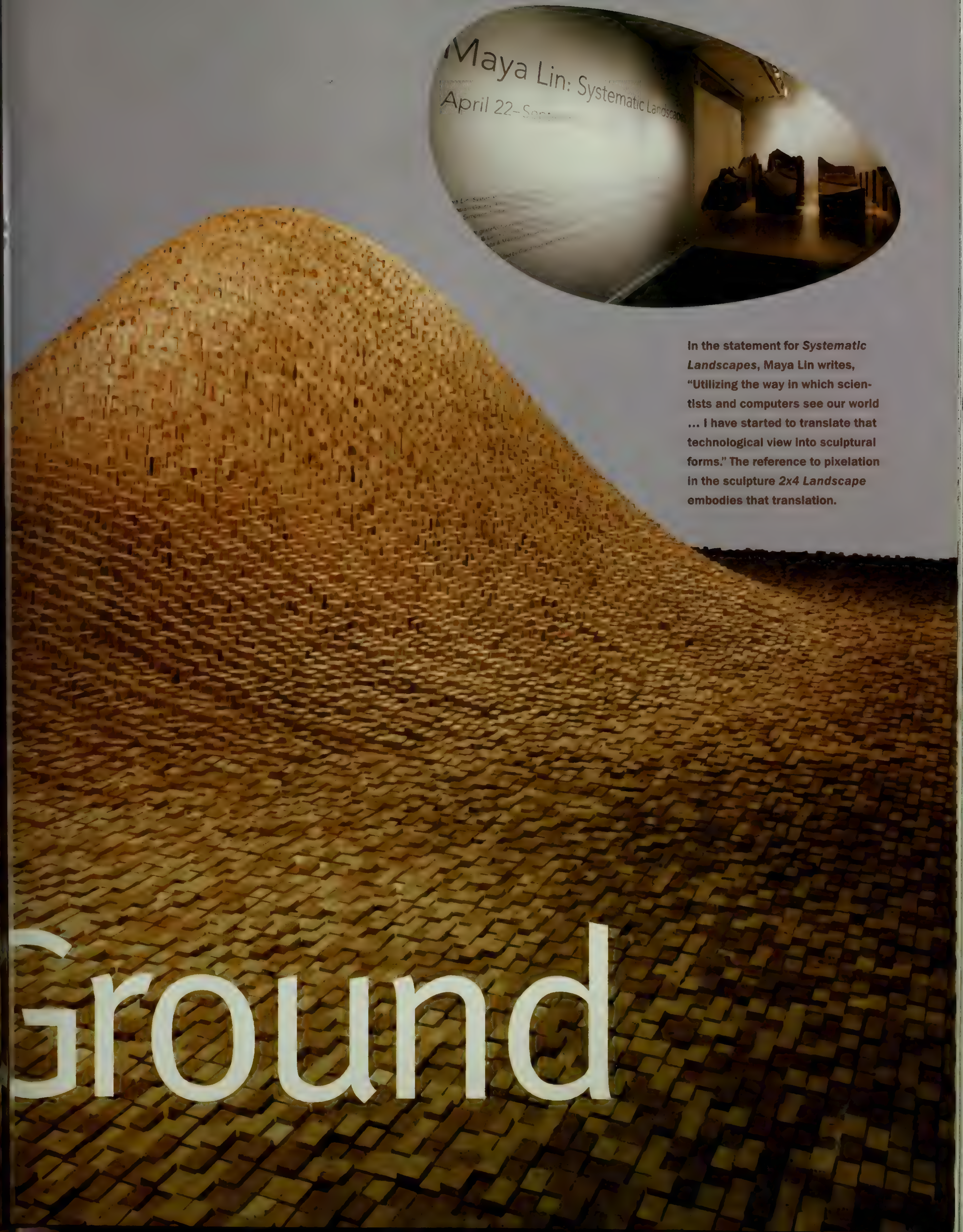
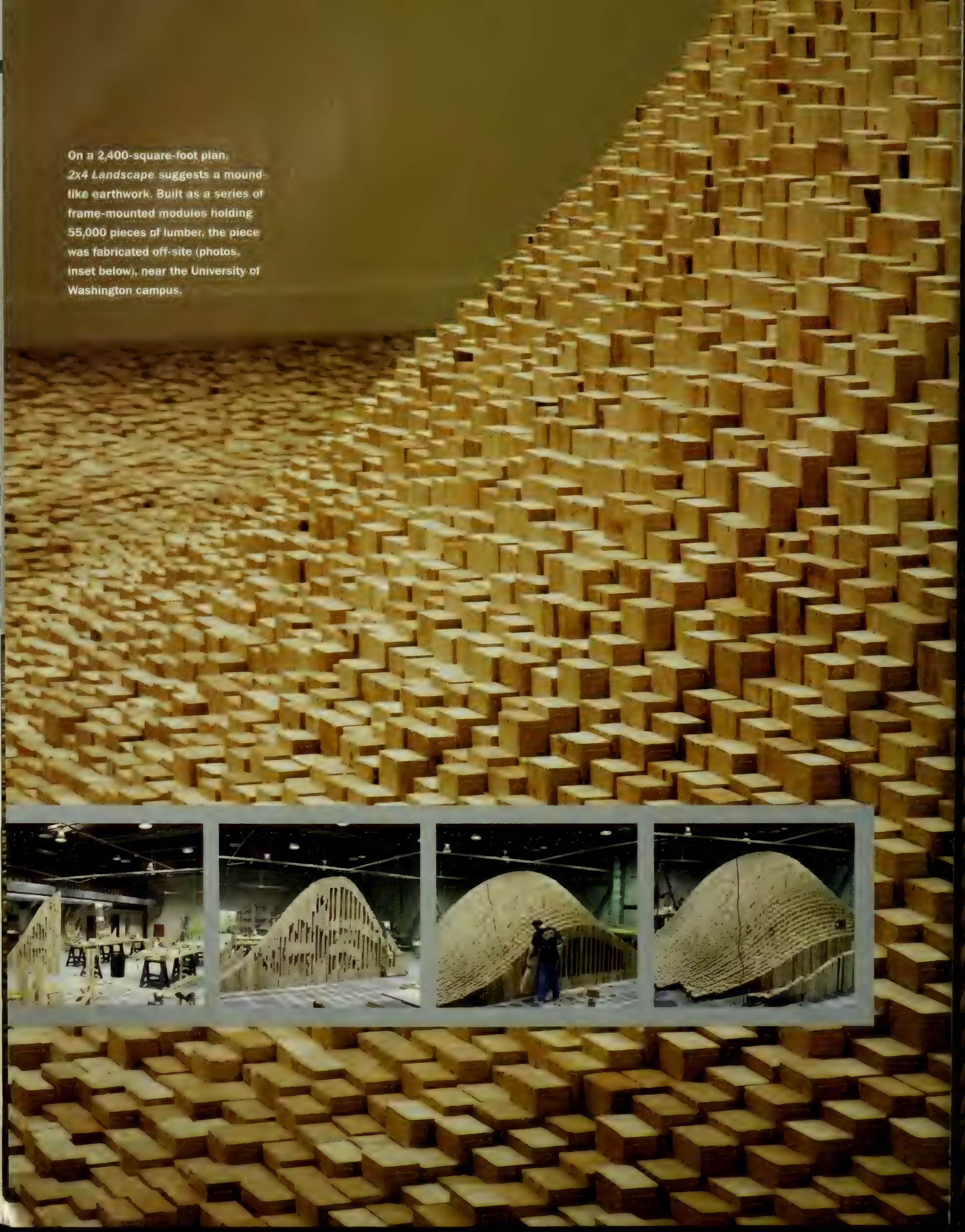
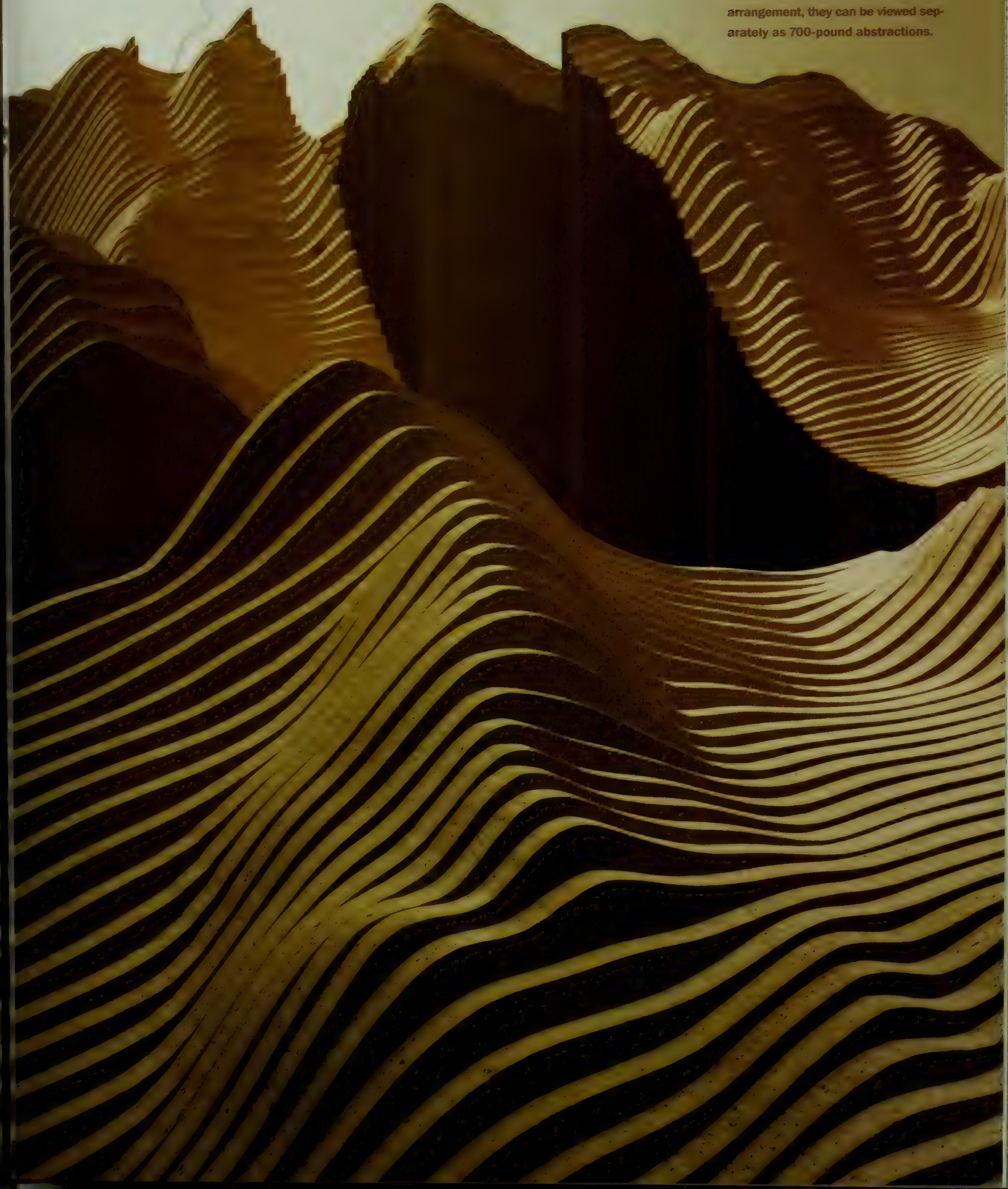


In the statement for *Systematic Landscapes*, Maya Lin writes, “Utilizing the way in which scientists and computers see our world … I have started to translate that technological view into sculptural forms.” The reference to pixelation in the sculpture *2x4 Landscape* embodies that translation.

Ground

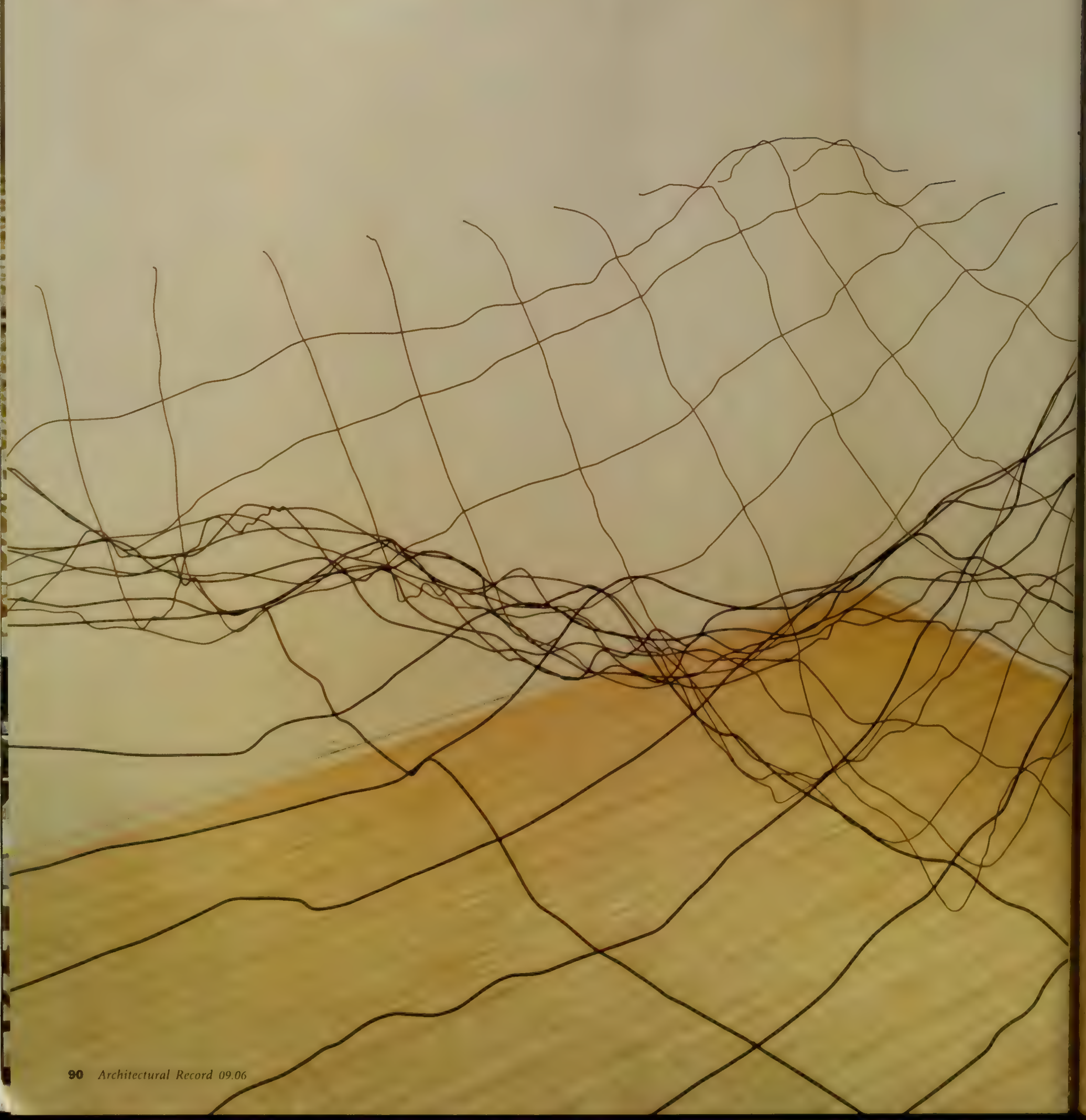


On a 2,400-square-foot plan, *2x4 Landscape* suggests a mound-like earthwork. Built as a series of frame-mounted modules holding 55,000 pieces of lumber, the piece was fabricated off-site (photos, inset below), near the University of Washington campus.



If the 3-by-3-foot blocks of *Blue Lake Pass* were united, they would form an accurate topographic model of a Colorado mountain pass. In this arrangement, they can be viewed separately as 700-pound abstractions.

Water Line is based on a computer diagram of the contours of the Mid-Atlantic Ridge at Bouvet Island, 1,000 miles north of Antarctica. Lin increased the scale of the image and reconfigured it slightly, producing a sketchlike effect, before fabricating it in quarter-inch-diameter aluminum tubes. The sculpture fills the East Gallery, affording the visitor two unique perches: From the balcony above, corresponding to the surface of the water, and from the floor level, offering a journey comparable to tunneling beneath the Earth's surface.



(continued from page 86) Massive landforms, aerial views, the Earth's expressions of power: These are the motifs that appear in the Henry show, where Lin imagines and recreates terrains as giant maquettes that repeat simple material units, such as two-by-fours, particleboard sheets, and straight pins. Even though *Systematic Landscapes* tackles the same themes as Lin's 1998 traveling exhibition *Topologies*, she says the predecessor was "much more about objects." This effort is more akin to one of her landscape installations, though it takes over an environment that just happens to be a museum. But, she wondered, "Can I literally pull inside what I do outside without any loss of translation because it's an interior space?"

The scale of the exhibition's 25 commissioned works, filling 10,000 square feet of space, is totemic, lying somewhere between sculpture and environment—and forcing the visitor to straddle experiences of observation and habitation. The blockbuster *2x4 Landscape* is exemplary: Here, 55,000 cuts of local lumber, laid on the end grain and assembled in modular armatures, peak above 10 feet. The summit rises asymmetrically within the 2,400-square-foot plan, contains a large yet shallow dimple on one side, and conjures up multiple analogies. From one far corner, the piece evokes a cresting wave; from another, a hill city in miniature. Other views become almost purely graphic, showing off an undulant surface with endless zigzags or a random assortment of wood grains and lumber manufacturers' stamps.

And yet views are only part of the experience. On scheduled days, visitors may sign a waiver, don special footwear, and climb the giant form. Lin says that after completing the installation *the character of a hill, under glass* for an American Express facility in Minneapolis in 2002, "My automatic idea was: What would it be like to make a hill you can walk on and feel like you're touching the sky? You have desires, you have ideas like that, which sit in your head until the right time."

Lin differentiates explicitly between her art and architecture, even admitting, "I've had a much slower path because I've chosen not to choose." But doesn't *2x4 Landscape* blur that distinction? She hesitates, then explains, "Everyone's going to look at it and say: She's making a point of using architectural materiality. It is not a deliberate move on my part to state that I come from the architectural world. The two-by-fours represent, one, a common material, and two, a pixelated landscape you see bit by incremental bit."

"Pixelation," a verbal shorthand for the high-tech means by which we map our planet's contours, unifies *2x4* with the other works on display. In *Blue Lake Pass*, endless layers of laser-cut particleboard represent the topography of a Colorado mountain pass, which Lin cleaved into 20 pieces, each weighing 700 pounds. The move seems arbitrary. But then again, so is science. Consider the units of a standard topographical map: The meter is but a platinum rod sealed in storage in France, and the foot represents the extremity of some long-ago human.

Lin gleefully adapts "exacting" scientific models for the show's other works, such as *Water Line*, a suspended, topographically distorted grid of extruded aluminum tubes. She began with the Woods Hole Oceanographic Institute's sonographically derived diagram of Bouvet Island, a tiny land mass 1,000 miles north of Antarctica, altering the lines slightly for artistic purposes. The sculpture suggests a computerized wire-frame drawing that wandered off the screen and grew to fill the Henry's 900-square-foot East Gallery. Taking similar liberties of interpretation, Lin created the *Bodies of Water* series, with stacks of plywood, each about 20 inches tall, that exaggerate the depths of the Caspian, Black, and Red Sea floors.

"If you look at 18th-century landscape painters and how they saw the natural world," Lin says, "[you'll see that] this work has a little bit of that romance. But we have very different tools for looking at the natural world." She notes the ecological message of these sculptures. *Bodies of Water*, for example, alludes to some of the world's most endangered ecologies, though you might not know it from the pristine works, surfaced in birch veneer.

A journey through the exhibition brings a certain feeling of omniscience: *Blue Lake Pass*'s multiple pieces allow you to walk at a leisurely pace examining chunks of what would otherwise be rugged ground to traverse. Meanwhile, you can view *Water Line*'s wiry form either from a balcony that corresponds to the point where Bouvet Island peaks above the ocean, or from the installation room's floor, which allows you to occupy space metaphorically beneath the Earth's crust. And the plinths on which *Bodies of Water* rest encourage the visitor to travel above, between and below "natural phenomena" that are, in reality, impossible to access.

"These works," Lin says, "are about creating a space you walk through and that envelops you. They take you away, pulling you in a little bit." Conceding that *Systematic Landscapes* does occupy a middle ground between art and architecture, she adds, "Architecture and these sculptures are both experiential—but in very different ways." ■

Pin River **delineates the Columbia River in thousands of straight pins. Lin is installing works at seven sites along the river as part of the** ***Confluence Project*****, which commemorates habitats discovered by Lewis and Clark.**

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Record Interiors 2006

Like a kaleidoscope, the brass-lined *Passage of Honour* at the Nobel Peace Center focuses your view on a dazzling multiplicity of images. In creating the Peace Center, a permanent exhibition enue in Oslo, architect David Adjaye draws on a richly eclectic mix of aterials and geometries to transform an old rail station—and alter e visitors' perceptions visually, spatially, intellectually, and perhaps ven emotionally. Here, the subject matter is global peace and strife, nd Adjaye informs the highly experiential journey through the building with long, open-ended, tubelike passageways, framing complex terior views, and such varied surfaces as rubber, glass-reinforced lastic, and vibrant red resin, in addition to the brass.

All the projects in Record Interiors began with existing ructures (even if, at an earlier time, the interior architect also esigned the shell). And in each case, the new insertions compellingly alter our perceptions of the space. When, for example, you ut your head back for a shampoo at Jun Aoki's Xel-Ha beauty lon, in Tokyo, your sense of depth is challenged by a view of the irling and translucently luminous ceiling that seems to float oudlike above. And at Tadao Ando's Morimoto restaurant, in New ork City, lighting and transparency also play key space-altering les. Here, you can look through the prism of a LED-lit wall, made of 17,400 water-filled bottles, each evoking a great chunk of ice. And at Karla, an event space in Miami, Florida, veil-like backlit walls and high-gloss epoxy floors simultaneously define and dematerialize each room's crisp edges.

For KU64, a dental clinic in Berlin, Graft architects dispense with rectilinear forms, in favor of a bright yellow "dunescape" that makes you forget the dread or pain of the dental drill.

A material choice produces a shift not only in mood, but also in scale at Winka Dubbeldam's Schein Loft, in New York City. In lining the loft corridor's Caligariesque contours with bog-oak wood, the architect not only emphasizes the wood grain's supersize figure, but also generates strong pulsing rhythms throughout the space.

And the sense of spatial flow becomes particularly powerful at Thomas Heatherwick's La Maison Unique Longchamp, an upscale Manhattan retail space, where a highly sculptural steel-and-rubber stair surges like a great wave, propelling customers "upstream" to the selling floor, on the second story.

At Longchamp and the other projects featured in this issue, we encourage you to come on in, head up (or down) the stairs and around the bend to take in the spatially transformative experiences of Record Interiors 2006. *Sarah Amelar*

2

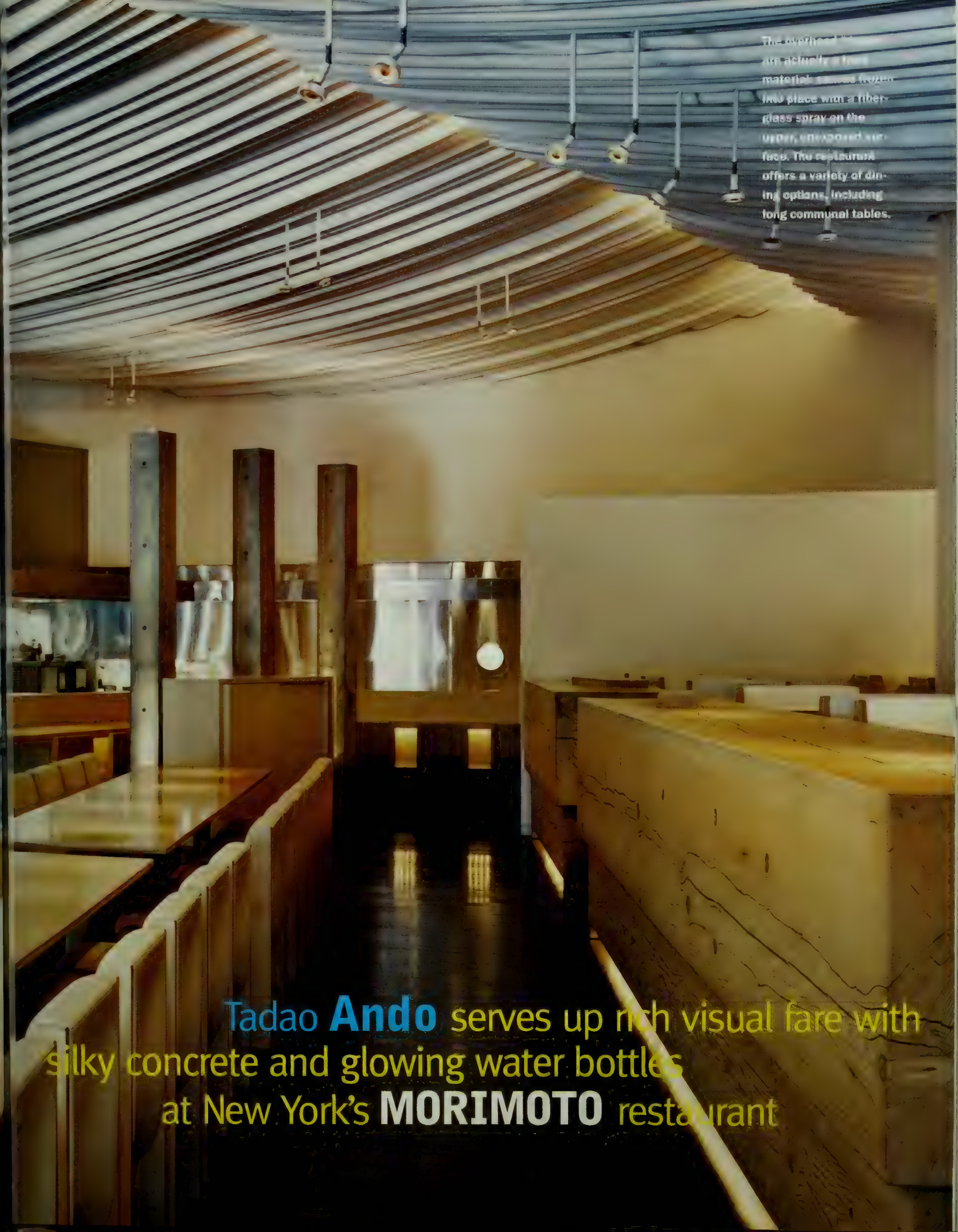
3

4

6

7

The architects featured:
1. Tadao Ando
2. Graft
3. Jun Aoki
4. Winka Dubbeldam
5. David Adjaye
6. René Gonzalez
7. Thomas Heatherwick



The overhead [illegible] are actually a fine material [illegible] frozen into place with a fiberglass spray on the upper, unexposed surface. The restaurant offers a variety of dining options, including long communal tables.

Tadao **Ando** serves up rich visual fare with silky concrete and glowing water bottles at New York's **MORIMOTO** restaurant

By Sarah Amelar

Flaps of persimmon-red cloth over the entrance of Manhattan's Morimoto restaurant flicker wildly in the breeze, animating the industrial brick-and-blackened-steel facade. A curiosity to passersby, the flame-bright scrims turn out to be a playful twist on a traditional *noren*, the curtain that hangs outside shops in Japan, signifying "open for business." Unlike a typical *noren*, this one is not of cotton, but of woven PVC weighted at the bottom, and it spans not a modest commercial doorway, but an almost theatrical 50-foot-wide arch. This supersize gesture offers a first taste of the space's inventive and, in many cases, oblique allusions to Japanese culture. Just as chef Masaharu Morimoto—a star of TV's *Iron Chef*—fuses Japanese sushi with such flourishes as *fois gras* and crème fraîche, the restaurant design borrows seasonings from eclectic sources.

Right behind the *noren*, automatic doors glide open, revealing that this is not your classically sober, ultraserene Tadao Ando project. Certainly, concrete, his signature material, is present—notably in the stair descending from the 160-seat dining area, at grade, to the bar and lounge below. But beyond that cool, quiet gray, the 13,000-square-foot interior conveys a sense of spectacle in its dynamic convergence of angles, multiple contrasting surfaces, and overhead ripples coursing across a luminous, tentlike ceiling.

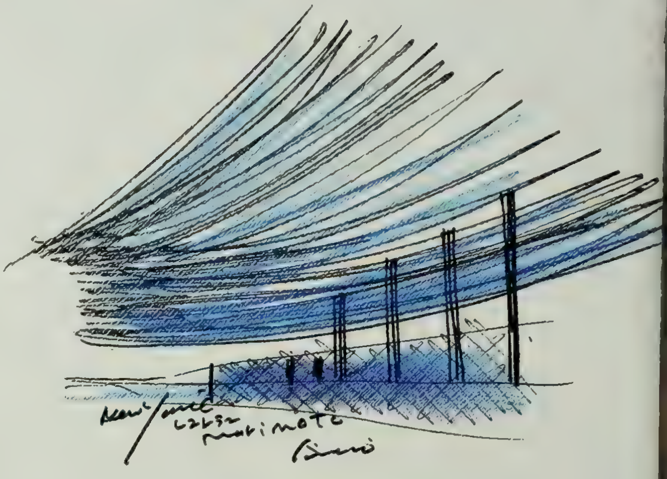
A nearly two-story-high water wall, angled off of the plan's orthogonal lines, plunges down the center of the space alongside the stair. Not the gently trickling waterfall of Japanese gardens nor the country's almost glacially still fountains, this freestanding wall is composed of 17,400 half-liter plastic bottles, filled with mineral water and screwed into electric-socketlike couplers. While vertical stainless-steel rods hold the couplers, horizontal bracing carries LED point lighting, producing a backlit shimmery effect.

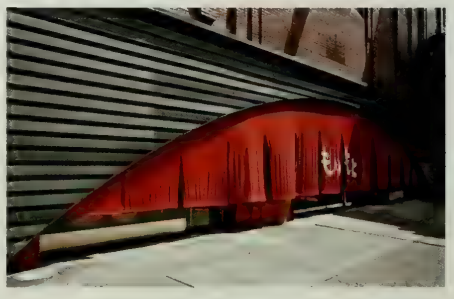
But is this whimsical (though literally splashless) exuberance really the work of the typically rather subdued Ando? "Restaurants are different from more 'serious,' architecture," he explains. "I recognize them as places for entertainment." His client, Stephen Starr, a self-described "longtime fan of Ando's" and "design-driven restaurateur," who had commissioned Karim Rashid for his Morimoto restaurant in Philadelphia [RECORD, November 2002, page 164], convinced the Japanese architect to take on this $6.5 million project in what was once the Nabisco Baking Company's gritty loading dock and basement. The space now borders Manhattan's Chelsea Market, a hip, quasi-industrial food arcade. Starr was initially concerned, he confesses, that the project might turn out "museumlike and all concrete," so he "respectfully let Ando know early on that the restaurant would need warmth." And, it seems, a lively spark.

Playful experiments with plastic water bottles are not, however, new to Ando's work. In recent years, he used empty ones in his traveling sets for an opera, conducted by Seiji Ozawa, and for temporary exhibition walls at the Suntory Museum, a 1994 building in Osaka of his own design. (Early in his career, he even built several modest restaurants—though apparently none with plastic bottles.) "I'm interested in bottles," the architect says, "because they're very basic household items that can become something else entirely different, depending on how you use them."

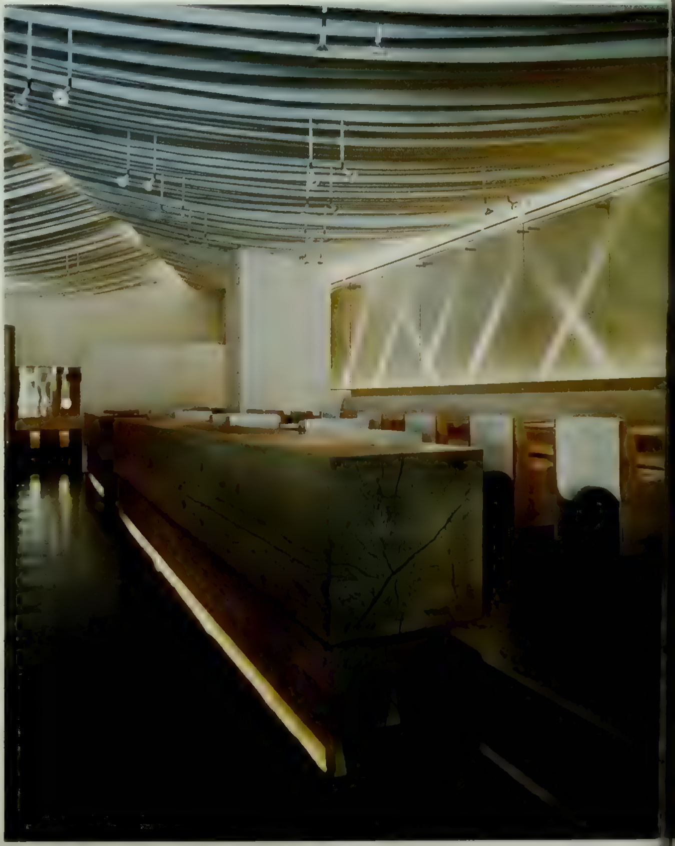
At Morimoto, as Ando readily acknowledges, the outcome—for the water vessels and the entire interior—evolved through a true collaboration of talents. To orchestrate the project, he chose Stephanie Goto, a young Japanese-American architect who heads Goto Design Group, a

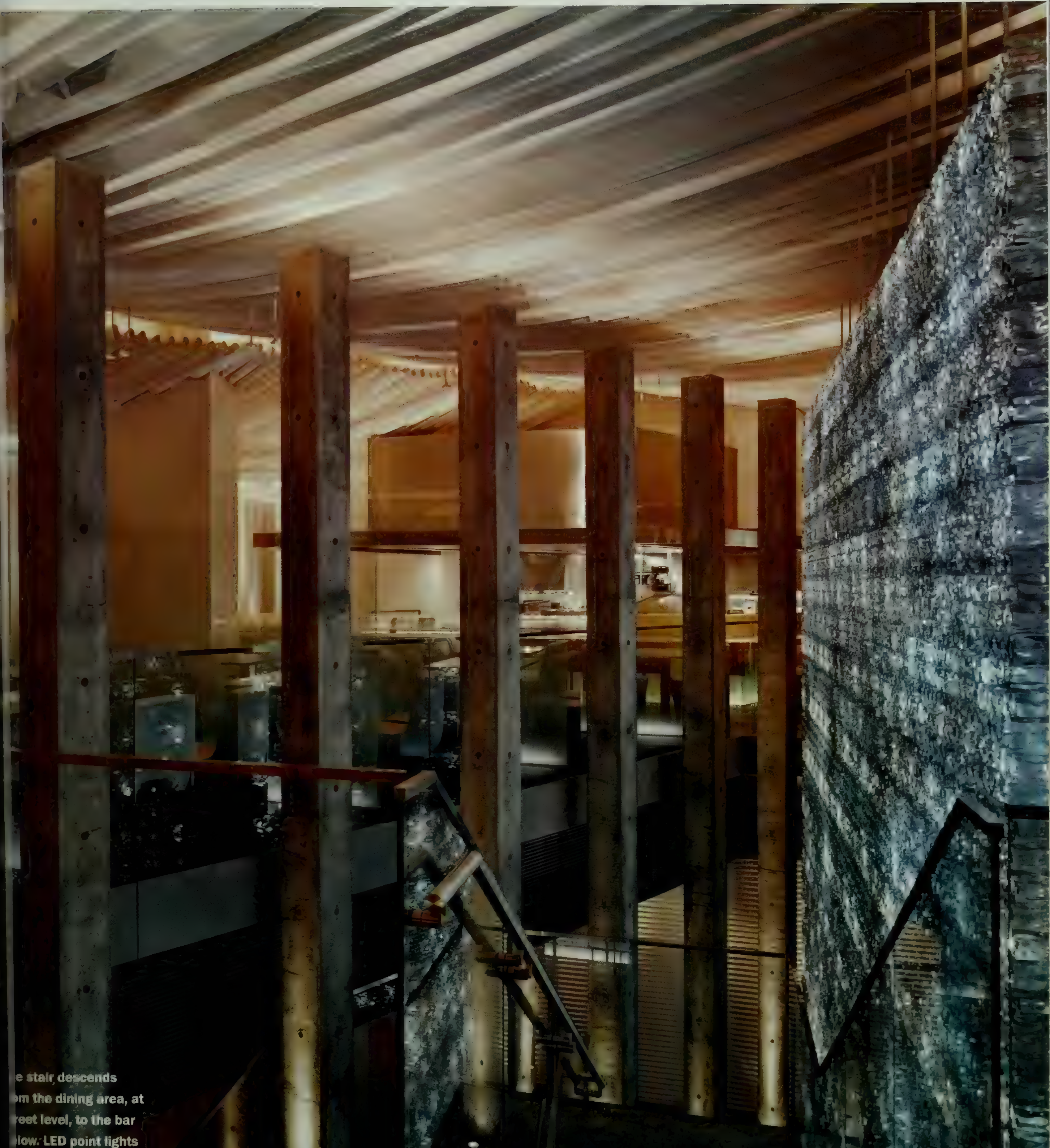
Project: *Morimoto New York, N.Y.C.*
Architect: *Tadao Ando Architects and Associates—Tadao Ando, principal; Masataka Yano, project architect*
Associate architect: *Stephanie Goto Design Group—Stephanie Goto, principal, New York project architect*
Engineers: *Leslie Robertson and Associates (structural); Thomas Polise (m/e/p); Langan (geotechnical)*





The *noren* (hanging cloth, left) spans a 50-foot-long arch at the restaurant's entrance. Ando superimposed blackened-steel cladding over the existing facade. A huge, cracked Douglas fir log forms a counter (below).





e stair descends
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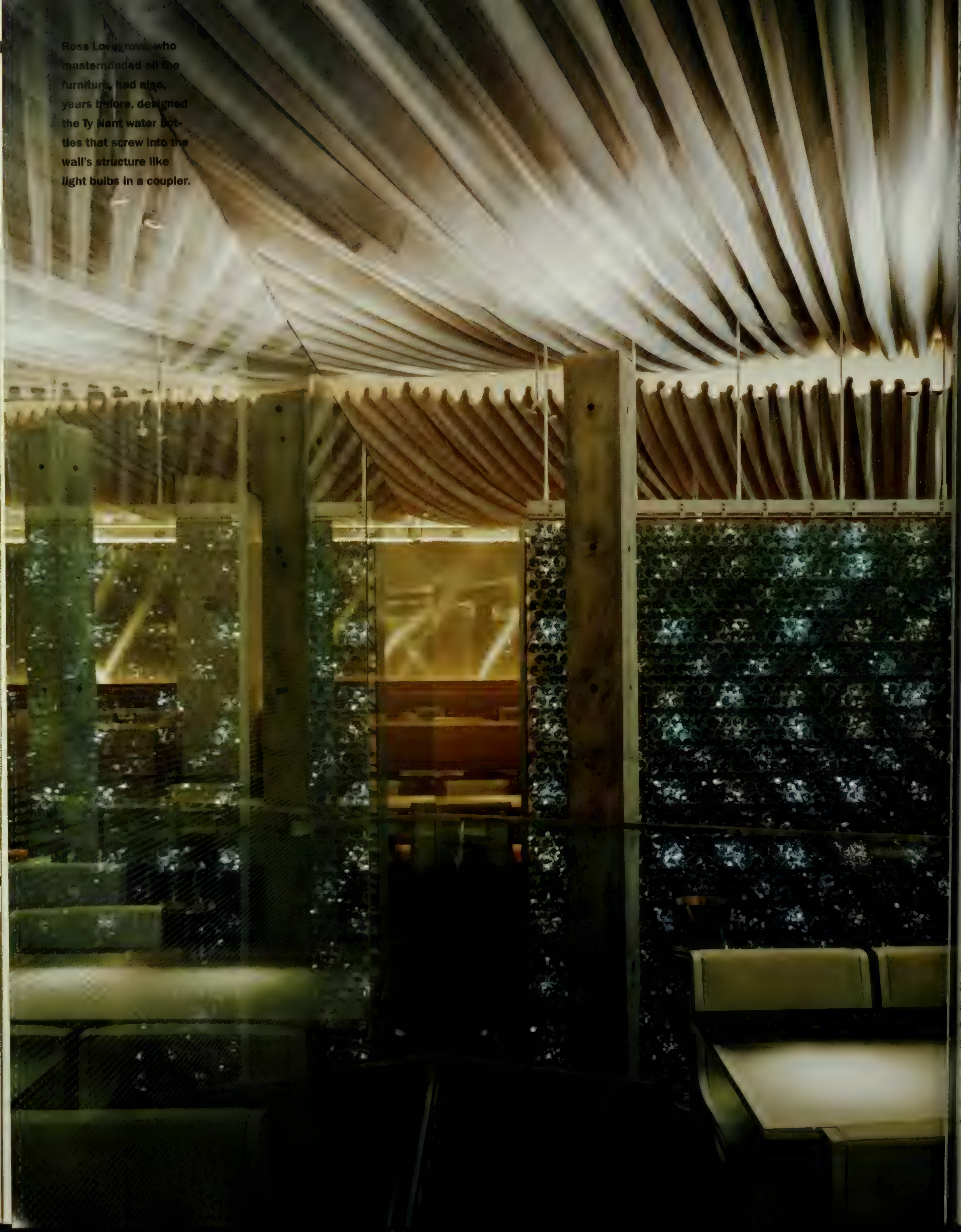
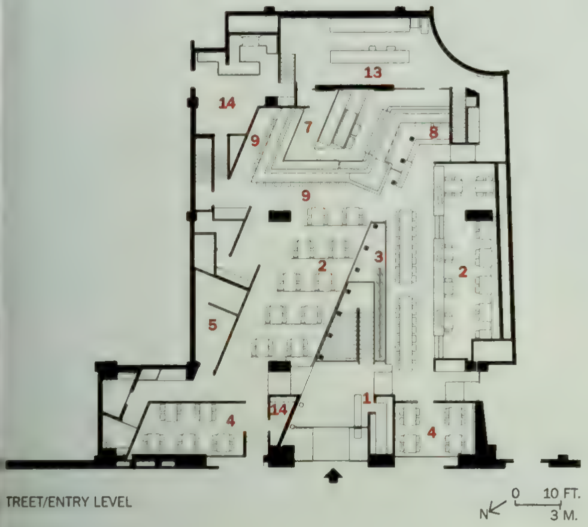
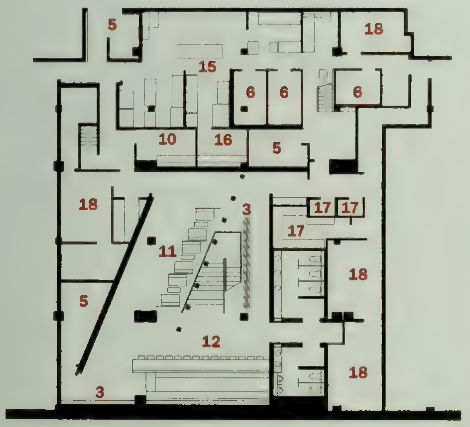


Ross Lovegrove, who masterminded all the furniture, had also, years before, designed the Ty Nant water bottles that screw into the wall's structure like light bulbs in a coupler.

plights cast "X"s on rice-papered wall opposite). Glass parti- ions, with a denser rit pattern toward the ottom, provide some rivacy (opposite, at ft). The cantilevered, poured-concrete stair, pinned at top and bottom, hangs from four of the square concrete columns, none of which actually touches the ceiling (this page, top and bottom).



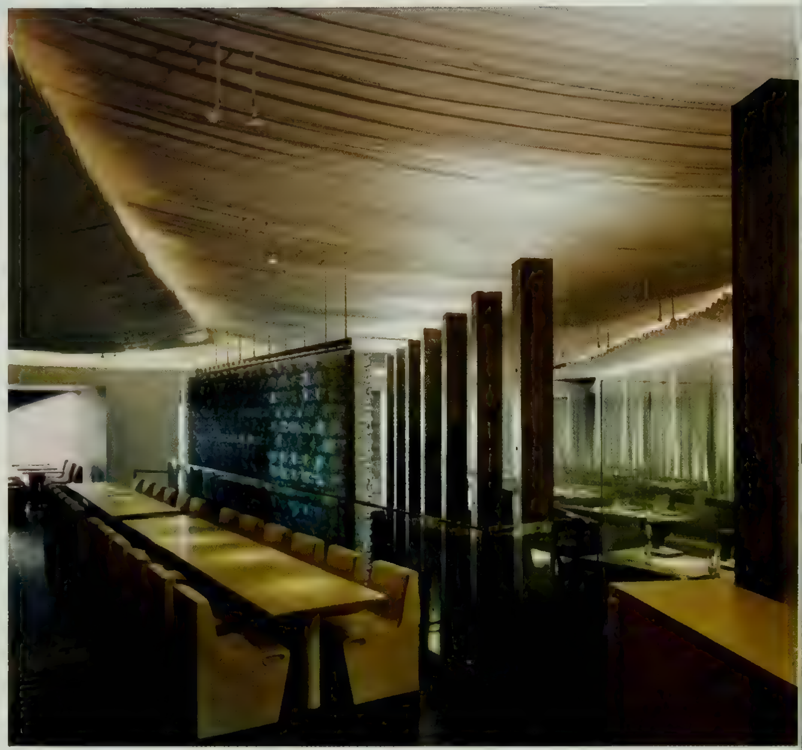
TREET/ENTRY LEVEL

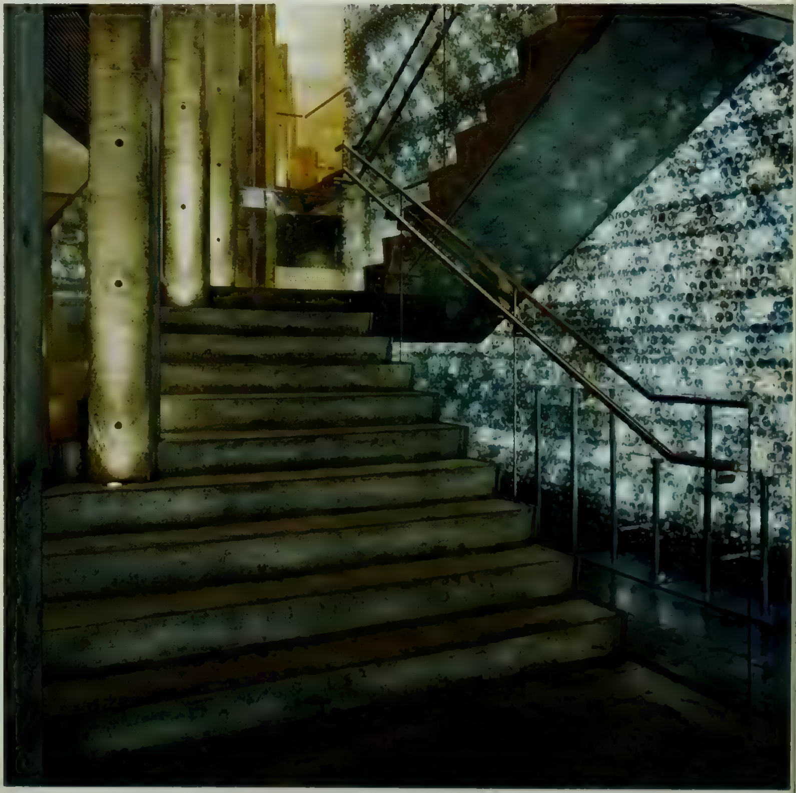


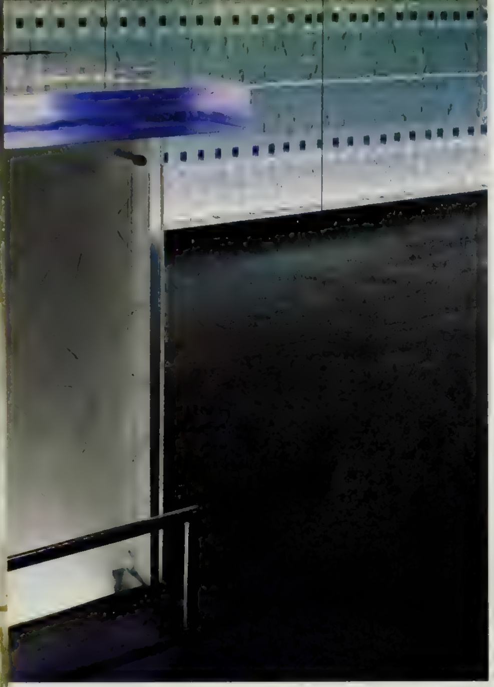
LOWER LEVEL

Host/coat check
Dining
Bottle wall
Private dining
Storage
Walk-in refrigerator
Exposition kitchen
Omakase bar
Sushi bar

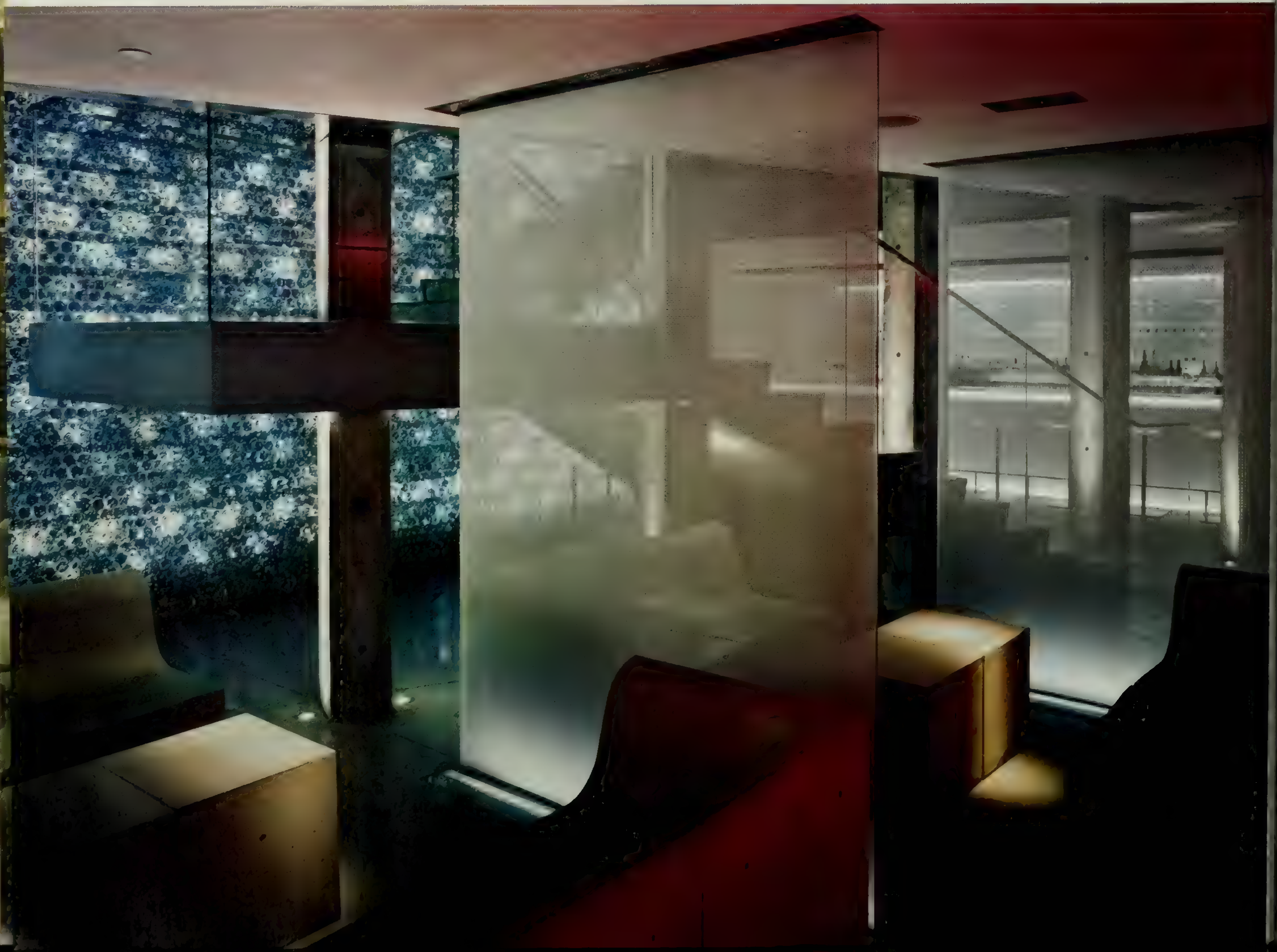
10. *Manager*
11. *Lounge*
12. *Bar*
13. *Main kitchen*
14. *Dish washing*
15. *Prep kitchen*
16. *Chef's office*
17. *Staff only*
18. *Mechanical*

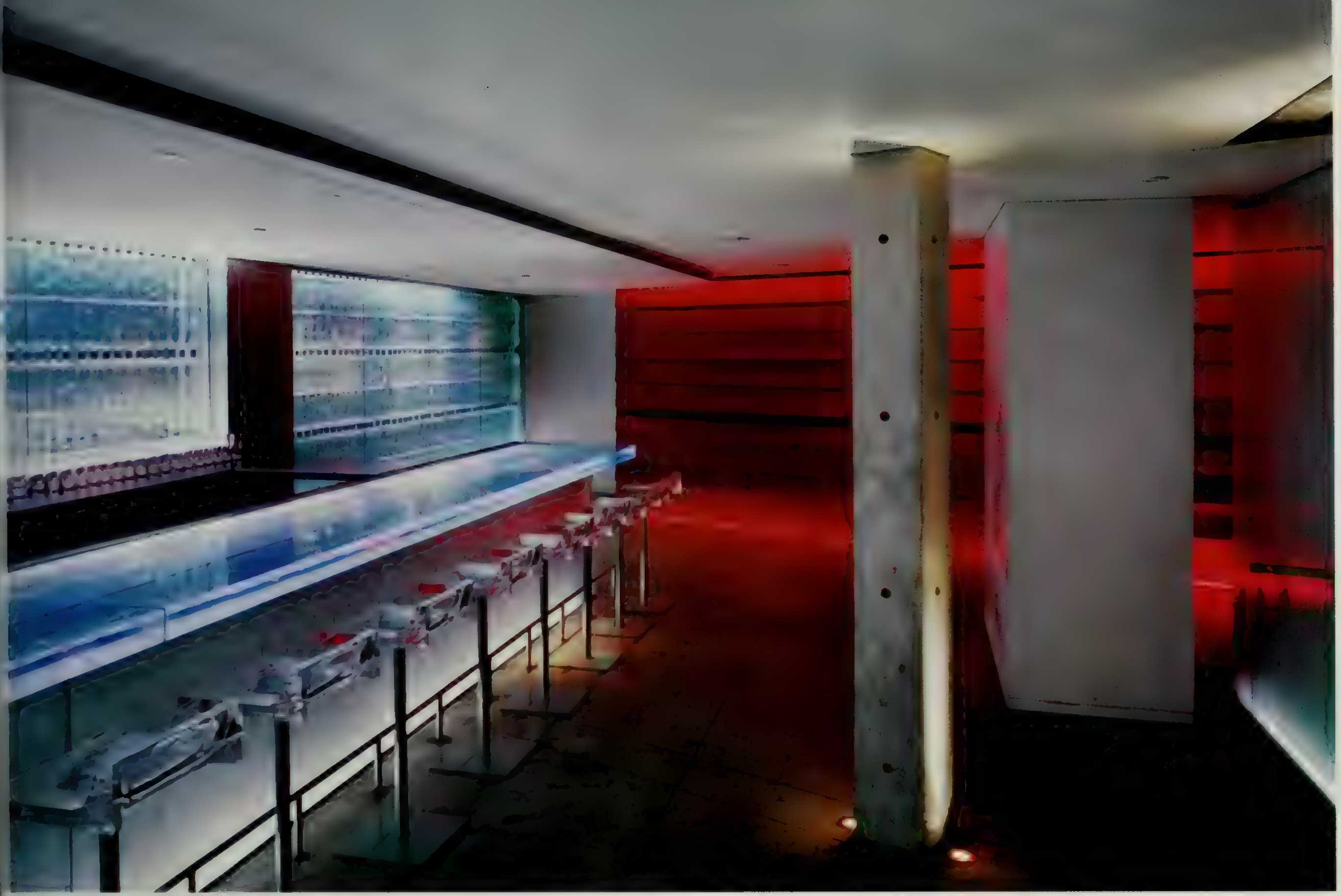






Ghostly leaf skeletons appear to float in the resin bar top (far left and opposite). Each bathroom stall offers views into an "infinity wall," containing silk flowers that the staff changes seasonally (near left). The lounge chairs look like concrete but are actually soft milled foam of varying densities (below).





mall New York firm. She credits her earlier work as a project architect for avid Rockwell with teaching her how to produce or, as she puts it, creative-direct" an ambitious restaurant interior. "This is definitely Mr. ndo's vision and design, but if I had not been involved with every spect," she admits, "the end result might have looked quite different."

Hand-selecting materials, processes, and skills from often unconentional sources, she hired Showmotion, a theatrical "theming" contractor r Broadway sets, to fabricate the dining area's rippled ceiling. Ando wanted e gently undulating surface to have a light, breezy quality, balancing the arkness of the oak floors he stained charcoal gray. And, says Goto, he also w the overhead treatment as a metaphor for the raked stones in a Japanese arden. Though the ceiling's 44 panels appear as soft drapery, they are actuly folds of cotton canvas frozen in place with fiberglass sprayed inch-deep n the unexposed surfaces. (Strong as a boat's hull, the suspended panels ere designed to carry the weight of workers standing on them.) Then, ghting designer Arnold Chan, of Isometrix, gave this ceiling and the entire ace a soft glow—in most places without visible light sources.

For the furnishings, Goto suggested London-based industrial/rniture designer Ross Lovegrove. "Ando and I might seem an unlikely mbo: I tend to maximize organic form, while his work is more Minimalist d linear," Lovegrove says. But as he had noticed, Ando chose this "organic" ork for several earlier projects, providing a successful foil for rectilinear ncrete. To create furniture that would "fit elegantly and noninvasively" to Morimoto, Lovegrove says he started each piece as a cube and then oded it from the inside. "Externally, the forms relate to Ando's work," he otes, "while internally, where they touch the body, they're more mine." ne version of that cubic model, Lovegrove's chairs for the lounge downairs, look like concrete (in homage to the architect), but are actually squishy, combining several densities of milled foam with a specially treated surface. So just as the dining area's ceiling, upstairs, appears soft but is, in fact, hard, these seats appear hard but turn out to be soft. "A sense of material discovery," says Lovegrove, "is very Japanese."

And there are many materials to discover here. The dining level includes a textured wall of rice paper and a huge, cracked Douglas fir log that serves as a counter. The water wall's bottles, evoking glistening chunks of ice, were designed by Lovegrove, years ago, for Ty Nant, a Welsh mineral water. And Chinese-made fritted-glass partitions, with a dot pattern growing dense toward the bottom, veil intimate dining enclaves within the larger room.

The lounge level, which took significant engineering to strengthen the foundations and keep a high water table at bay, has a low-key nightclub feel. Here, cedar wall panels, stained bright red, send a vibrant glow through crystal-clear, cast-acrylic barstools and a long resin bar top, embedded with delicate leaf skeletons. Even in the pure white bathrooms, a small spectacle awaits: A mirror trick behind each toilet presents endlessly multiplied views of flowers, receding into infinity. And beyond the bar is a variation on the central water wall, this one with bottles mounted end-to-end vertically.

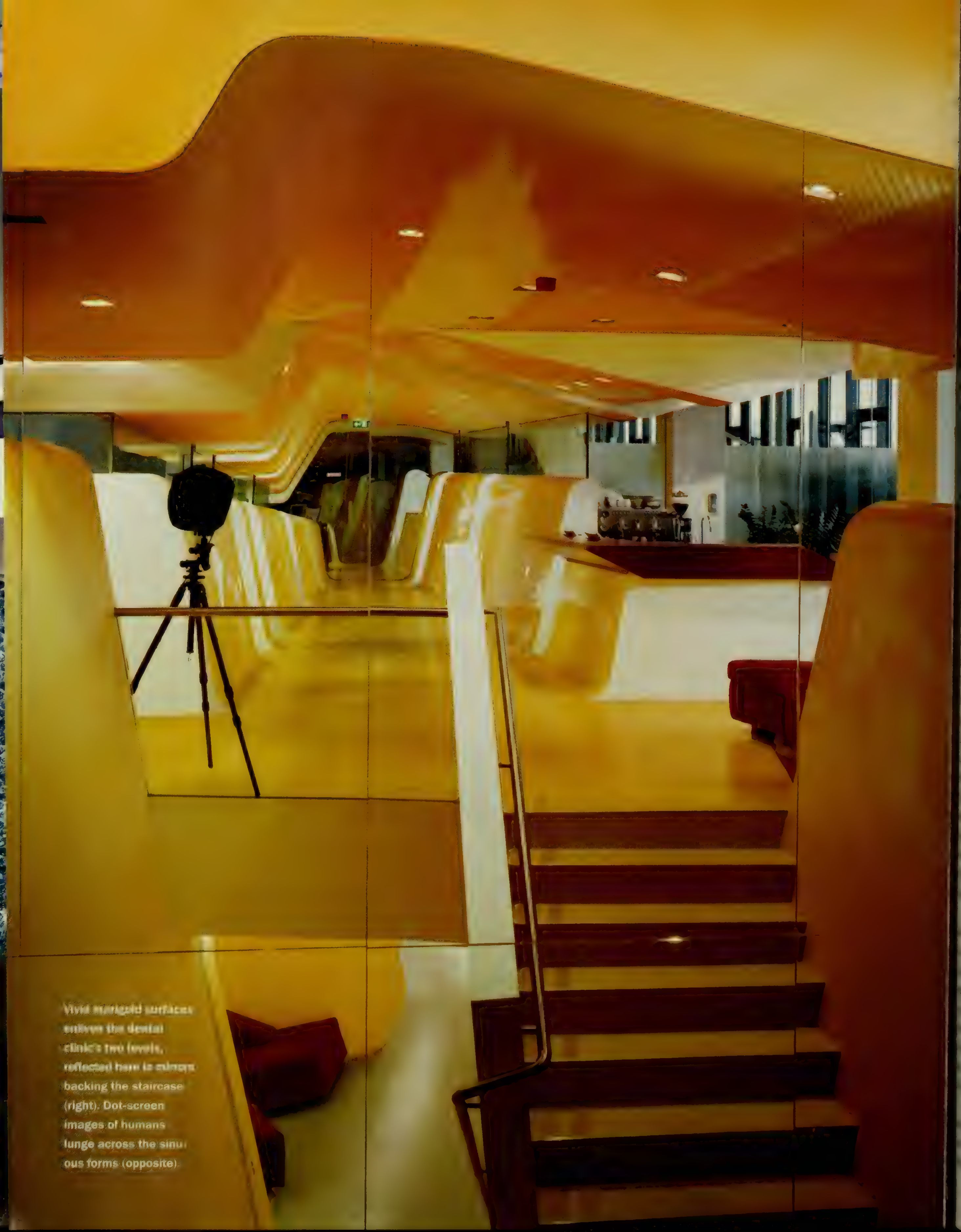
Throughout the two floors, Morimoto serves up a rich mix of visual ingredients. But the muted palette of natural concrete, cotton canvas, and wood—like precisely prepared sushi rice—is what allows the space's more intense flavors to stand out. ■

Sources

Furniture: *Poltrona Frau (custom designs by Ross Lovegrove)*

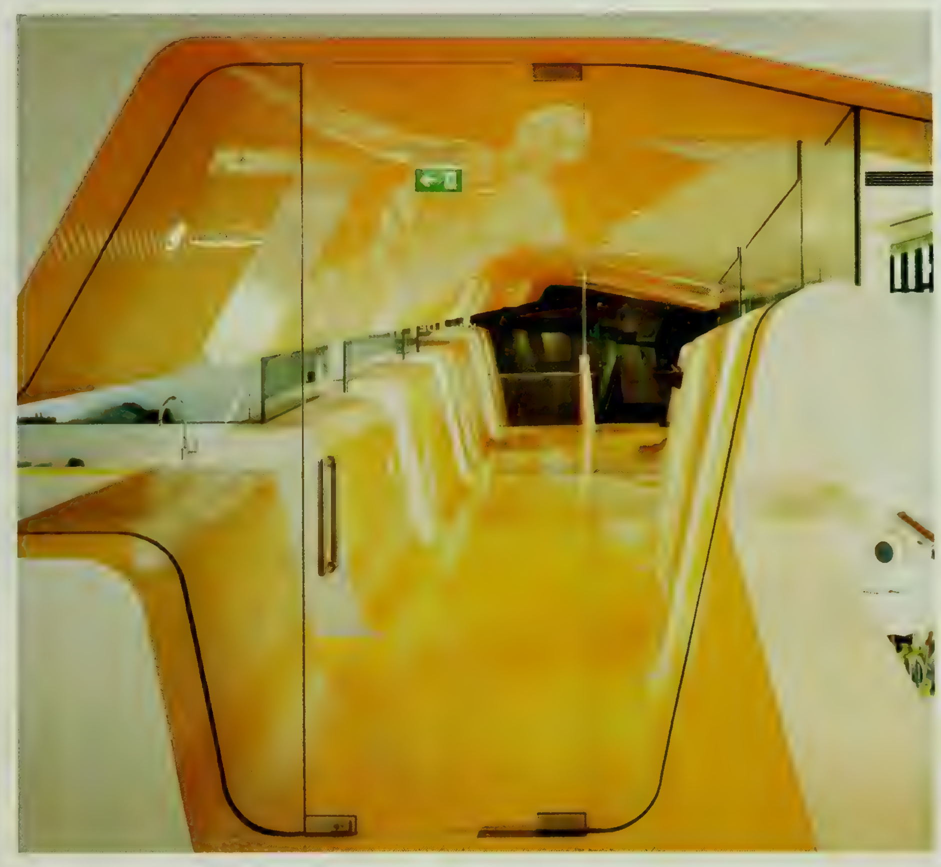
Lighting: *National Cathode; Lightolier; ALM; LitLab; Lucifer; Exterior Vert; IO; Phillips; Times Square; B-Light; Ardee*

For more information on this project, go to Projects at **www.archrecord.com**.



Vivid marigold surfaces enliven the dental clinic's two levels, reflected here in mirrors backing the staircase (right). Dot-screen images of humans lunge across the sinuous forms (opposite).

Graft renders dental visits spalike, complete with metaphoric beach dunes, at the sun-bright KU64 clinic in Berlin



ly Suzanne Stephens

The hot marigold hues of the swooping walls, floors, and ceilings in Berlin's KU64 dental clinic make you totally forget you are in the omain of the screechy drill and the softly ntoned claim,"This won't hurt." In tackling he design of a place so many dread, Graft, rchitects with offices in Berlin, Los Angeles, nd Beijing, sought to create a comfortably pbeat ambience. The clinic's location on the fth and sixth floors of an office building verlooking Kurfürstendamm, a grand shopping boulevard, gave the designers an idea. With ample sun coming through the southacing windows, we thought this would be erfect for a beach scenario," says principal ars Krückeberg. The "dunescape," as he escribes the firm's design concept, surreally vokes a Baltic seaside resort, even down to he poolside-style chaise longues and the mell of burning logs from a metal stove in the waiting room (intended to bolster that "happy oliday feel"). The aroma of freshly roasted coffee wafting from a cappuccino machine urther removes the client from thoughts of Novacain and pain.

The 10,180-square-foot dental clinic, called KU64 after its urfürstendamm address, is an unusual commission for the young firm, ormed in 1998. But Dr. Stephan Ziegler, who had seen a publication of raft's outré Q! hotel, just off Kurfürstendamm [RECORD, September 2004, age 128], approached the architects. Ziegler was putting together a full-ervice clinic for eight dentists, complete with its own laboratories and reventive-care consultation for patients who desire a spa ambience with l their dental care. Clearly the space could not look anything like a denst's office. And as Krückeberg points out, the old truism holds: "You must ave a good client—and a good architect—for architecture to happen."

To create a sinuous, cocoonlike setting that would flow right om the entrance through the entire length of the main floor (but without a high price tag), the architects used drywall construction, surfaced in olyurethane with a colored sealant. They visually activated the fluid, 3D forms further by spraying them with enlarged dot-screen images of the human figure, cast in anamorphic perspective, and then applying a clear lacquer sealant. To counter the intensity of the marigold hue, Graft turned to burgundy for furnishings and accents on the floors and walls. As Krückeberg puts it, "We wanted something warm and dark, with a grand-hotel connotation." But apart from the burgundy, brightness abounds.

Glass windows between treatment alcoves allow daylight to permeate the spaces. Once the patient is ensconced in a treatment alcove, however, he or she is removed from view, below the eye level of other

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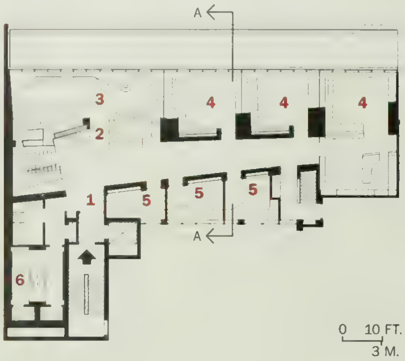
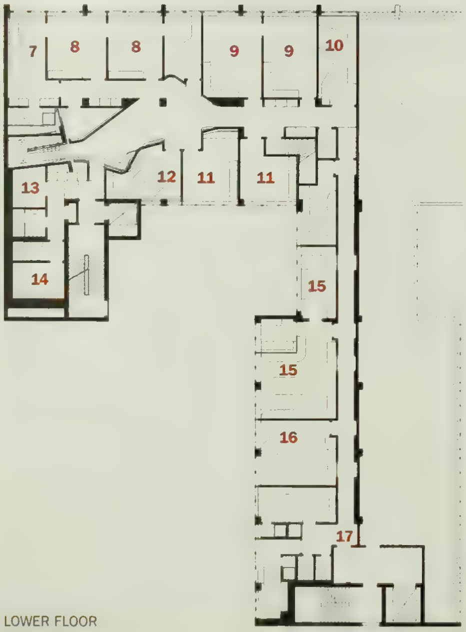
Project: *KU64, Berlin*
Architect: *Graft—Lars Krückeberg, Wolfram Putz, Thomas Willemeit, principals; Tobias Hein, Karsten Sell, project architects; Sven Fuchs, Lennart Wiechell, architects; Björn Rolle, Markus Müller, project team*
Engineers: *KGG (structural); ICM Ingenieurbüro (mechanical, electrical)*

1. *Entrance vestibule*
2. *Reception desk*
3. *Waiting room*
4. *Treatment area*
5. *Office*
6. *Washroom*
7. *Recovery*
8. *Surgery*
9. *Orthodonture*
10. *Porcelain workshop*
11. *Prevention*
12. *Health consulting*
13. *X-ray*
14. *Technical*
15. *Laboratory*
16. *Communal space*
17. *Changing rooms*

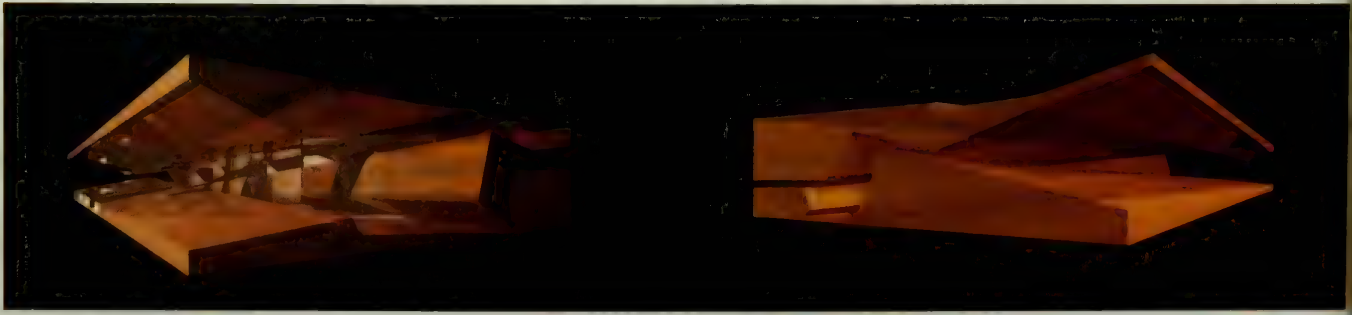


MAIN FLOOR

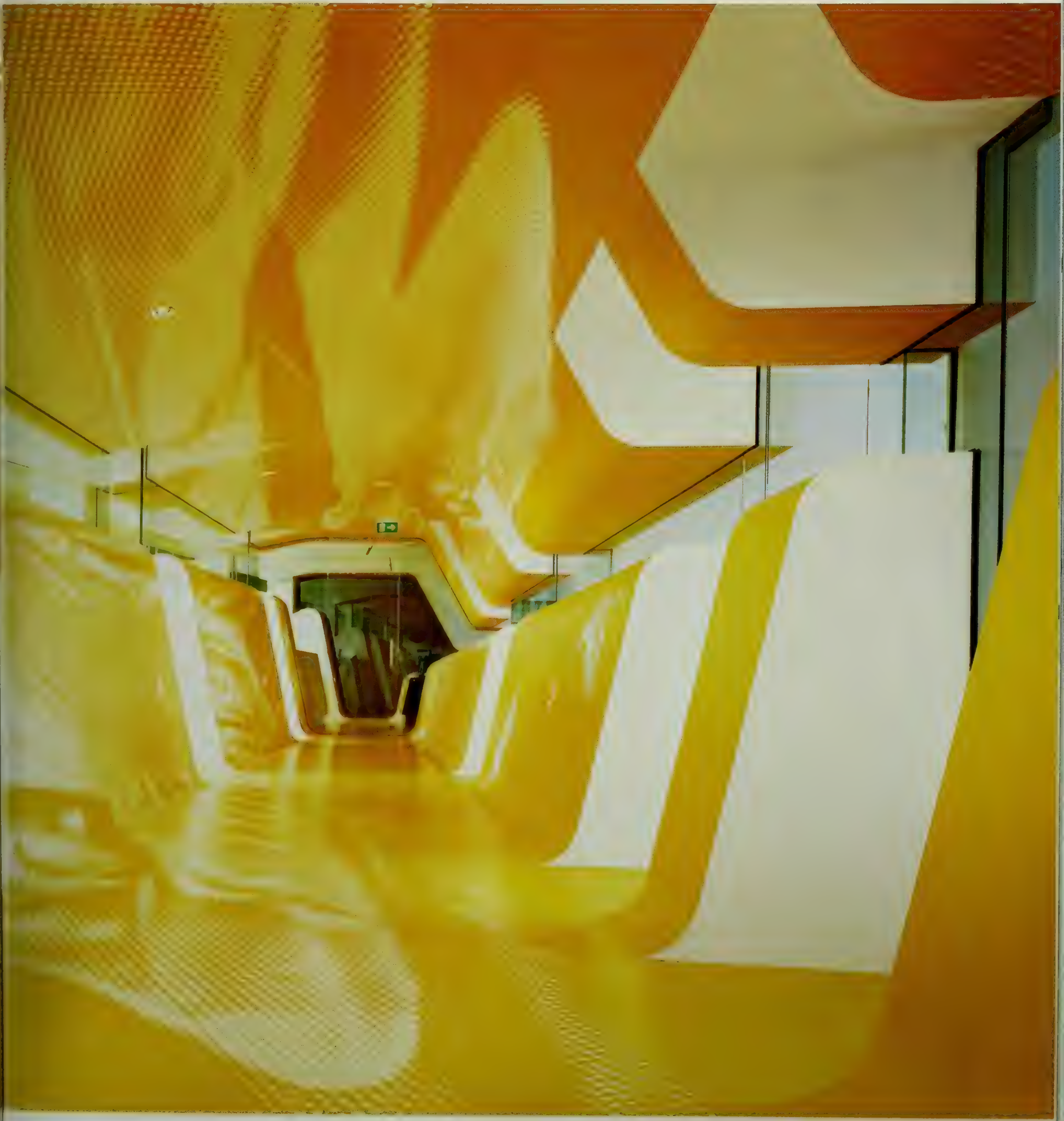


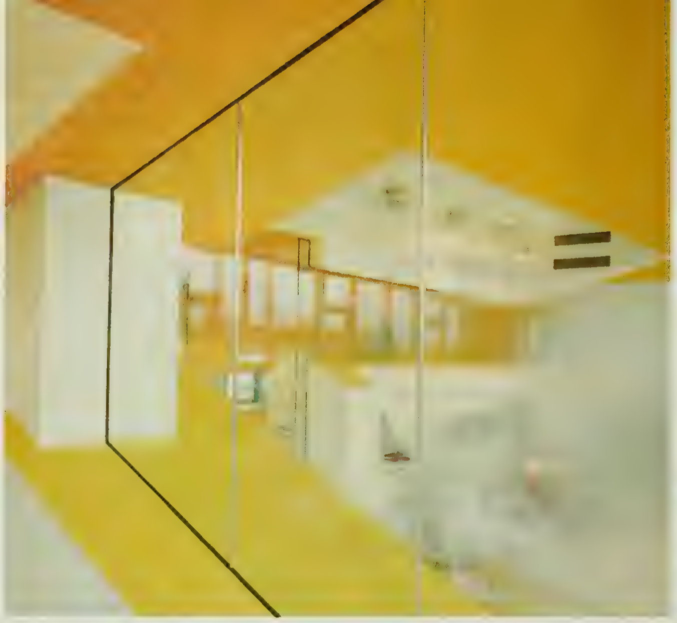
LOWER FLOOR

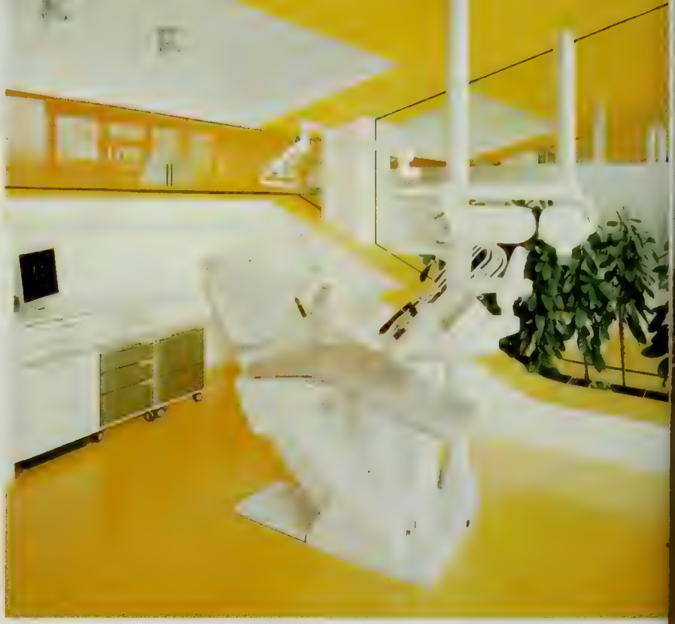
Burgundy fabric punches up lounge areas, as on the lower floor (above). Graft's computer-generated conceptual models (below left and right) suggest the sculptural plates, from which the spaces are carved.



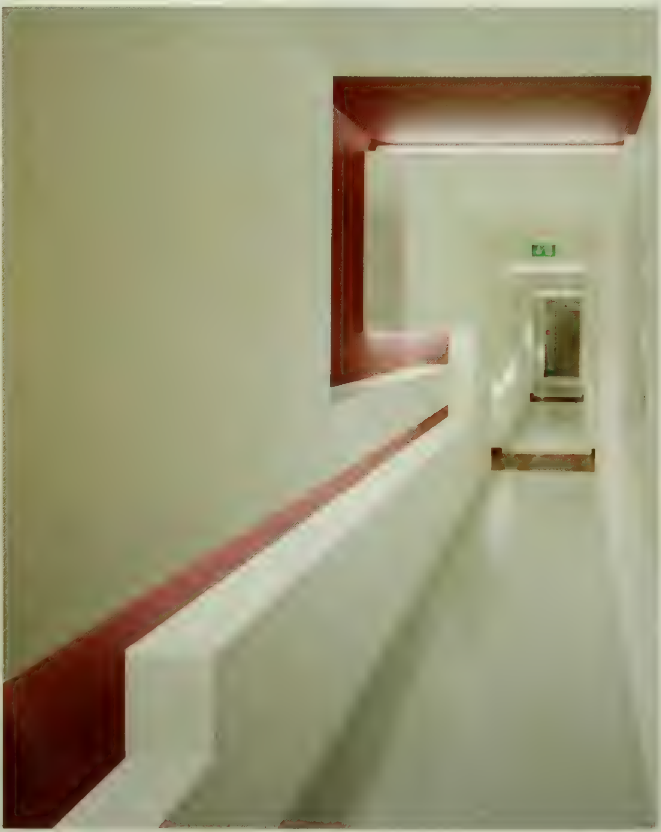
For the clinic's main level, Graft gave the ceiings, floors, and walls curved contours, built from drywall that was painted a bright marigold, sealed with polyurethane, and sprayed with white dot-matrix images of human figures.







The treatment rooms have windows onto the corridor, allowing daylight to infuse all the spaces. But the dental chairs (top right) remain sequestered below the eye level of passersby. Also, a view-control film on the glazing appears to turn from transparent to translucent as people approach. For a rear hallway leading to the labs, the architects built out the white drywall to conceal lighting and inset planes painted burgundy.



patients in the corridor. Krückeberg likens the sequestered experience o occupying a dental chair here to "sitting in a *strandkorb*, the enclosed beach chair on the Baltic that protects you from the wind—only here it is about a sense of privacy." To increase the visual seclusion for the various treatment rooms, the architects applied a view-control film on the glazing that visibly shifts from transparent to translucent for passersby in the hallway.

On the lower floor, with more specialized treatment rooms an labs, the horizontal dunescape of the main hall yields to a canyonlike configuration, affording greater privacy for surgery, orthodonture, an implantations. Here, the color scheme relies less on marigold, but is stil light—a Cabinet of Dr. Caligari rendered in yellow and white wit touches of burgundy. For a long narrow corridor leading to the labs and staff changing area, the architects both built out and carved back one sid of the hallway and ceiling to reveal planes of burgundy behind the whit drywall, with backlighting for volumetric effect.

KRÜCKEBERG LIKENS THE DENTAL CHAIRS TO "*STRANDKORBS*, THE ENCLOSED BEACH CHAIRS USED ON THE BALTIC."

In many ways, the concept for this exuberantly offbeat dent clinic fits well with the architect's general philosophy, based on botanic grafting. Krückeberg and partners Wolfram Putz, Thomas Willemeit, an Gregor Hoheisel (head of the firm's Beijing office) like to go beyond th boundaries of traditional architecture, grafting ideas from other discipline to create fluid forms that blur physical boundaries between walls, ceiling and floors. The approach seems to have worked brilliantly for Dr. Ziegle whose clinic already stays open seven days a week, year-round. "I wanted t invent a new kind of practice" he says, "and I needed an innovative desig that would make the patients very happy—which they are." Indeed. With a this ebullience, who needs laughing gas? ■

Sources

Drywall system: *Knauf*

Flooring: *Degussa AG Flooring (6th floor); Forbo (fifth floor)*

Interior ambient lighting and downlights: *Wever & Ducré*

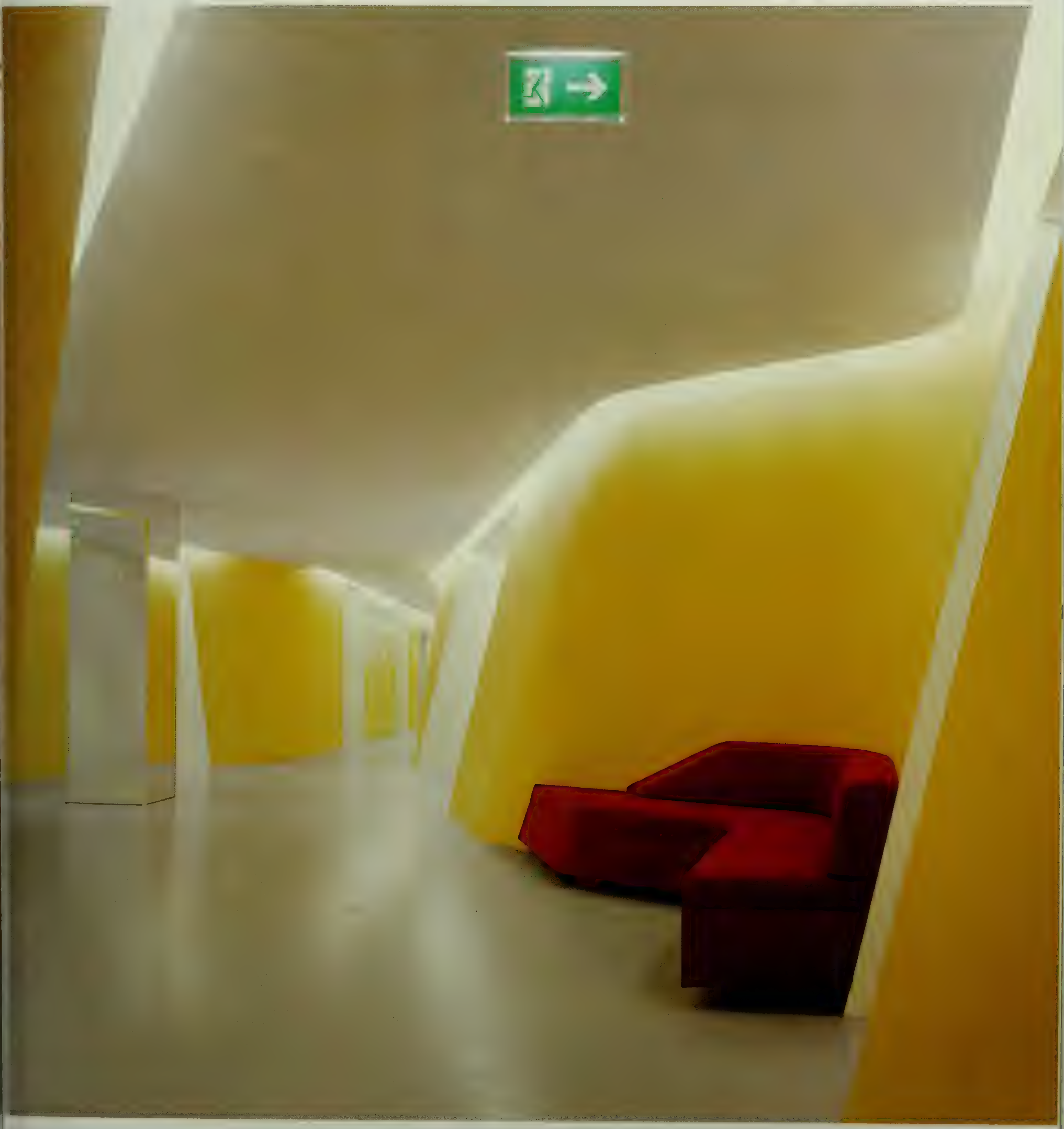
Glazing view control film: *Lumisty*

Sinks, faucets: *Agape*

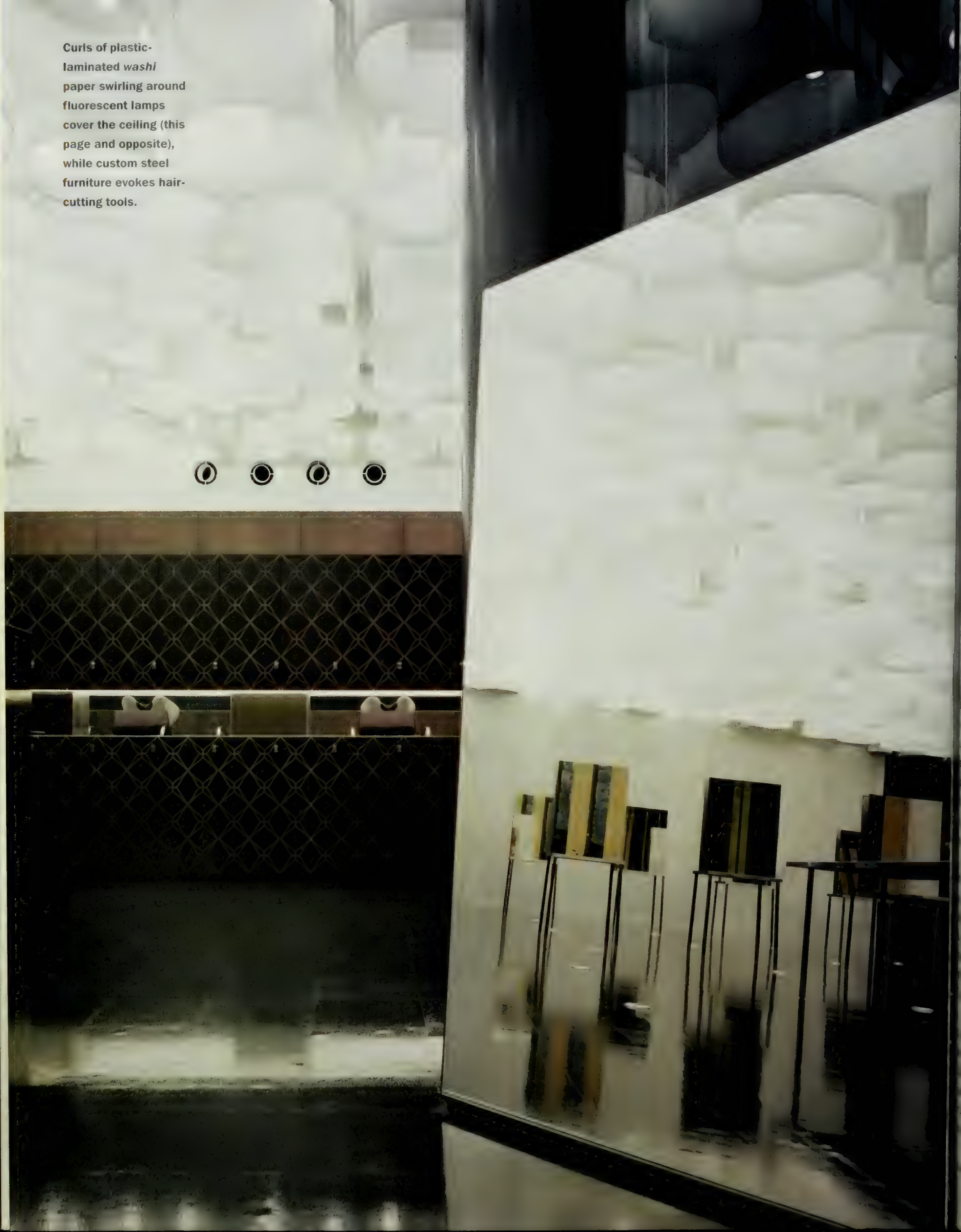
Fireplace: *Euroflues (Ergofocus styl*

For more information on this projec go to Projects at **www.archrecord.com**.

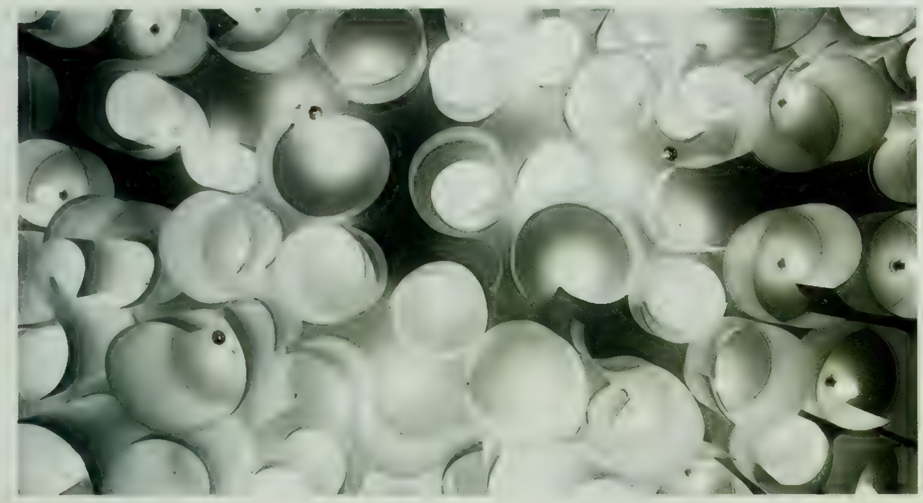
On the dental clinic's lower level (below), swerving walls shield dental surgery and implant rooms, as well as recovery areas.



Curls of plastic-laminated *washi* paper swirling around fluorescent lamps cover the ceiling (this page and opposite), while custom steel furniture evokes hair-cutting tools.



Jun **AOKI** coifs the ceiling with luminous curls at **XEL-HA**, a new beauty salon in Tokyo's high-fashion district



Naomi Pollock

At beauty parlors around the globe, scissors-wielding stylists routinely scatter shorn locks over the floor. But at Xel-Ha, a Tokyo salon designed by architect Jun Aoki, even the ceiling is strewn with curls. Combining a finish with a lighting system, Aoki vered the entire 2,336-square-foot surface with swirling sheets of plastic- ninated *washi*, a bleached-wood pulp paper, commonly used for npshades in Japan. Each well-coiffed curl spirals loosely and eccentri- ly around a ball-shaped, 13-watt fluorescent lamp. "For the consumer, a it to a hair salon is sometimes a special event," says Aoki. "A salon must a little bit theatrical, plus a little bit cozy." Xel-Ha's dramatic cover is ntle on the eye but as head turning as a perfectly sculpted bouffant.

The decision to highlight the ceiling came in response to practical d aesthetic concerns. While the client, an established stylist, requested ndirectional, even lighting, the ceiling was one of the few places—amid ks, brushes, and blow-dryers—where Aoki could leave his mark. After when customers lean back for hair washing, they often gaze upward ough in most salons, the vista is unremarkable). And to passersby on the eet, the space—topping a three-story commercial building in Tokyo's notesando fashion district—reveals little more than its ceiling.

As realized, that lofty surface becomes most luminous and visible pedestrians at night, during the salon's evening hours and training ses- ns for budding barbers and beauticians. But even during the day, the ling's articulated contours are in full view from the curving, car-free pas- eway that divides the structure's base into an L-shaped block for high-end ail and a freestanding corner boutique for Cartier. The building, by archi- t Jun Mitsui, is a 2005 addition to the quarter's retail landmarks, which include Aoki's Vuitton flagship, just down the street, and Herzog & de Meuron's Prada "epicenter" [RECORD, October 2003, page 92] next door.

From the cobbled pedestrian way, a glass-enclosed elevator leads directly up to Xel-Ha. (Inspired by the owner's Mexican travels, the name is Mayan for "a place where water wells or is born.") The elevator opens onto the 3,746-square-foot salon, a single factorylike space divided into an open haircutting zone, to the left, and a secluded spa zone, to the right. For privacy and tranquility, the spa required a warren of treatment rooms behind full walls and doors. While hairstyling and spa areas needed clear separation, Aoki tied them together with a uniform material palette of dark brown surfaces, contrasting markedly with the ethereal white ceiling.

Aoki kept the overhead flow uninterrupted, where possible, by using low elements to subdivide the hair zone. Rising only three quarters of the way up, brown-lacquered customer lockers and a freestanding storage unit (topped by a glazed, champagne-and-water-stocked refrigerator) separate the shampooing chairs and basins that line the back wall from the cutting floor, with its 12, double-sided styling stations.

While the job called for durability, the architect sought expressive surfaces to set the mood. "If the materials are too smooth, the space doesn't feel relaxed," he explains. "But if they're too rough, it feels too relaxed." For the walls, he favored coarse chipped-wood board painted dark brown, camouflaging future dings; and for the floors, shiny brown plastic tile to endure chemical spills and constant sweeping. Overhead, Aoki achieved a luminous, cloudlike quality, as well as proper task lighting, by randomly distributing

Project: *Xel-Ha, Tokyo*
Architect: *Jun Aoki & Associates—Jun Aoki, principal; Noriko Nagayama, architect in charge*
Lighting consultant: *ITL Company*
General contractor: *Bill Gates*

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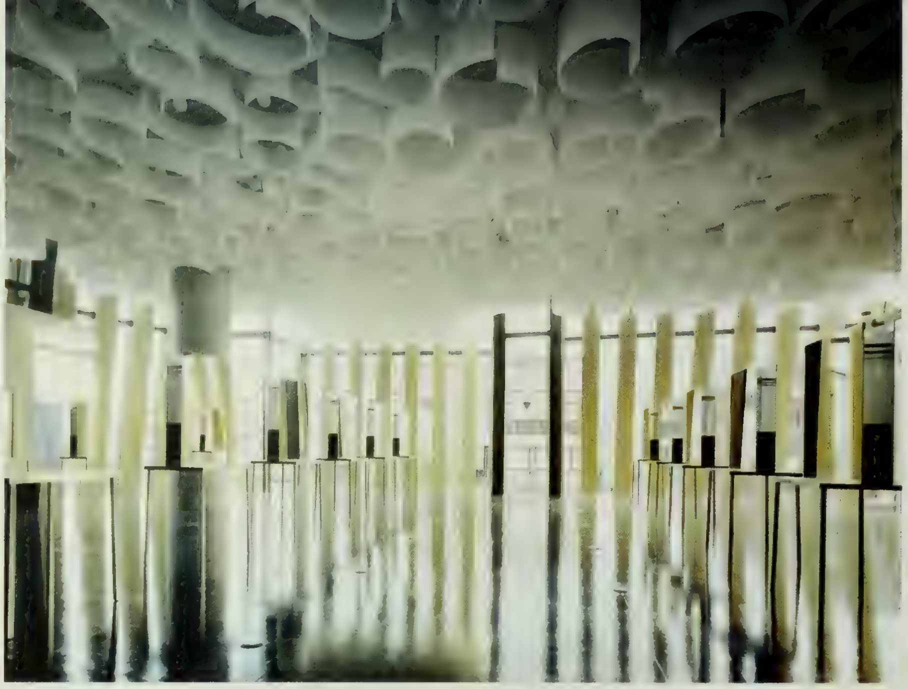
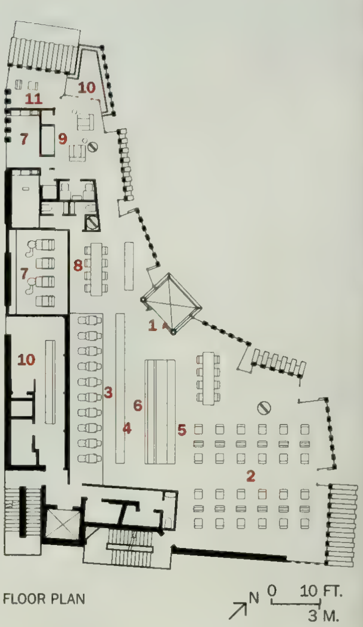
omi Pollock is RECORD's Tokyo-based correspondent.





FLOOR PLAN

1. *Entry/elevator*
2. *Haircutting*
3. *Shampooing*
4. *Lockers*
5. *Refrigerator*
6. *Reception*
7. *Spa treatment roo*
8. *Waiting*
9. *Nail salon*
10. *Outdoor space*
11. *V.I.P. room*

The cutting stations (above), just 19 inches deep, now have salon chairs (not shown). Hair-washing setups line one wall (below).

750 fluorescent lamps and 10 different spiral and S-shaped shades, varyin
from 8 to 20 inches in depth. To build this unusually complex ceiling, th
contractor transferred the architect's sketch onto a mesh cloth, affixed t
drywall, and traced over the irregular pattern with a marker. Guided by th
dotted lines where the pattern crossed the mesh, he bolted the bulbs int
place at intervals ranging from 14 to 32 inches, and surrounded them wit
curved metal frames to hold the milky white sheets, secured by plastic pin

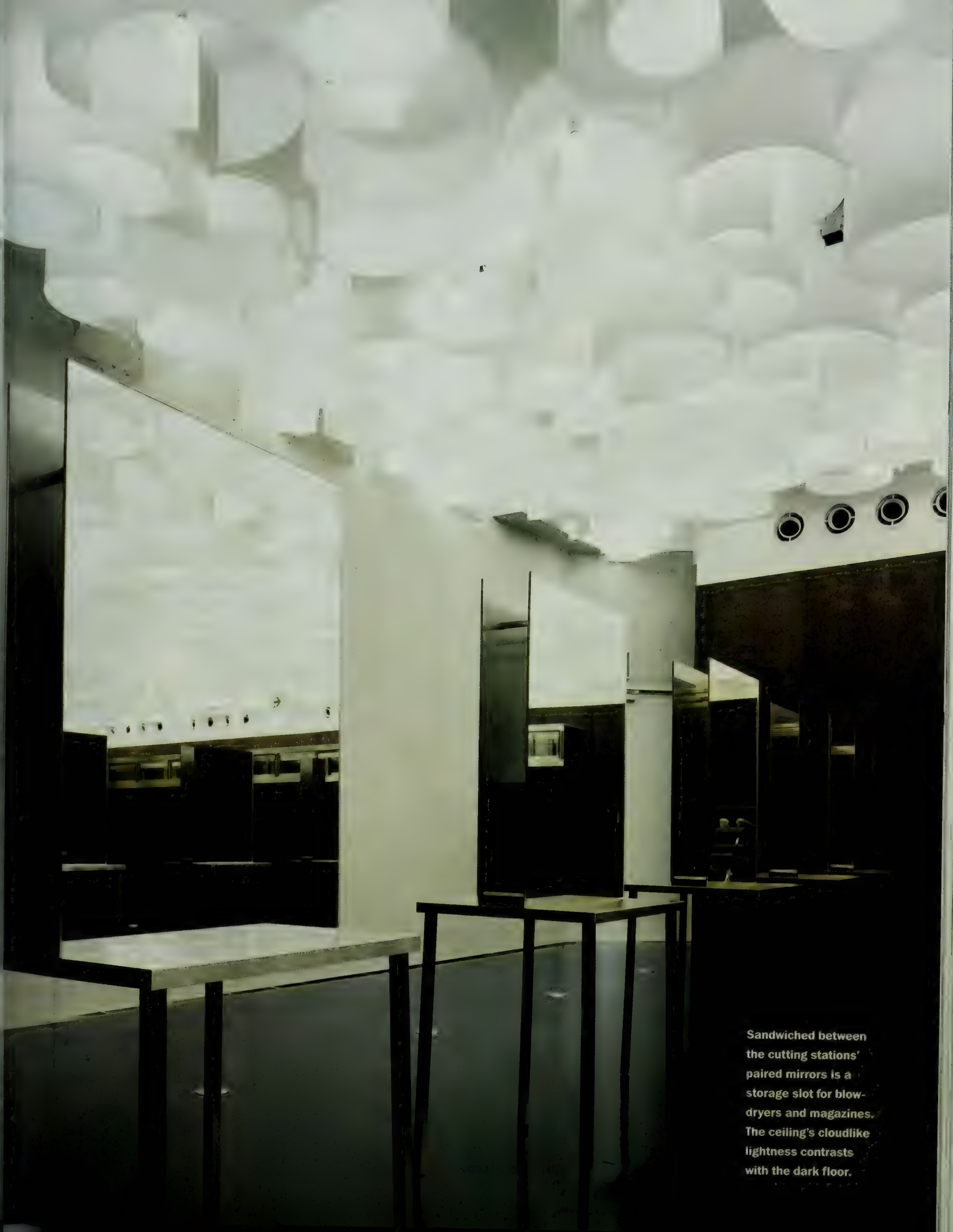
Adding to this material palette, Aoki designed delicately propor
tioned, mostly metal furnishings that evoke hairdressers' tools. Straddlin
the line between architecture and furniture, the 21-foot-long receptio
desk, abutting the customer lockers, is sharp-edged, with a stainless-ste
top and brown lacquered sides. Stainless steel was also the material o
choice for the cutting stations and waiting tables. Each station, only 1
inches deep, can accommodate a client on either side of paired mirror
which sandwich a storage slot for blow-dryers and magazines.

Aoki's thoughtful material selection and formal articulation als
respond to a larger scale: the building facade, which features concrete lou
vers tilting in various directions. Instead of competing with, bowing to, o
ignoring the assertive louvers, he complements their tan hue by renderin
Xel-Ha in multiple shades of brown and white, while mollifying the ext
rior's bold angularity with his graceful curves. In Japan, straight hair ma
still be the norm, but curls offer a welcome change. ■

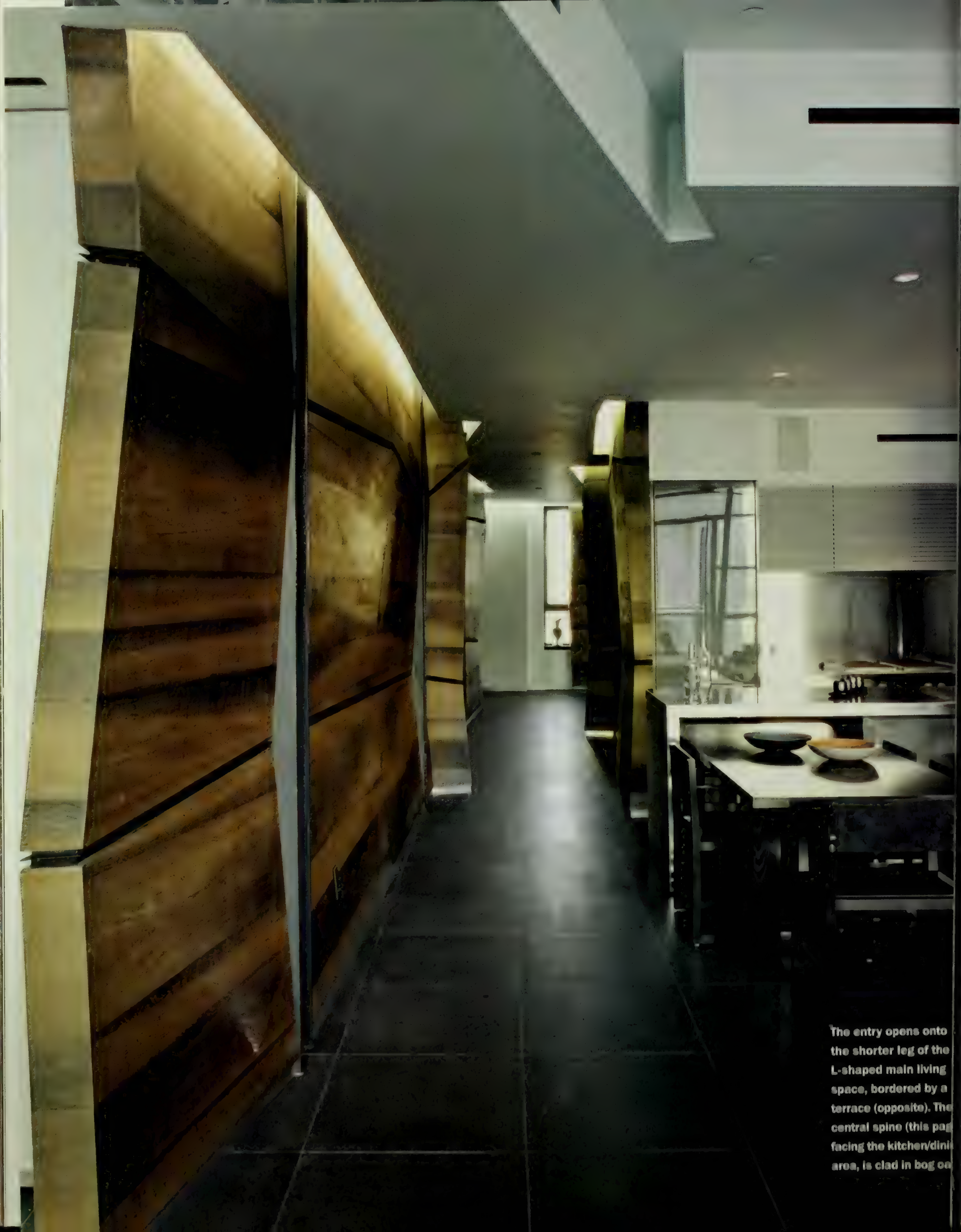
Sources

Lampshade material: *Warlon*
Lighting: *ITL; Endo*
Furnishings: *Hill International; Takara Belmont; Bill Gates*

For more information on this projec
go to Projects at
www.archrecord.com.

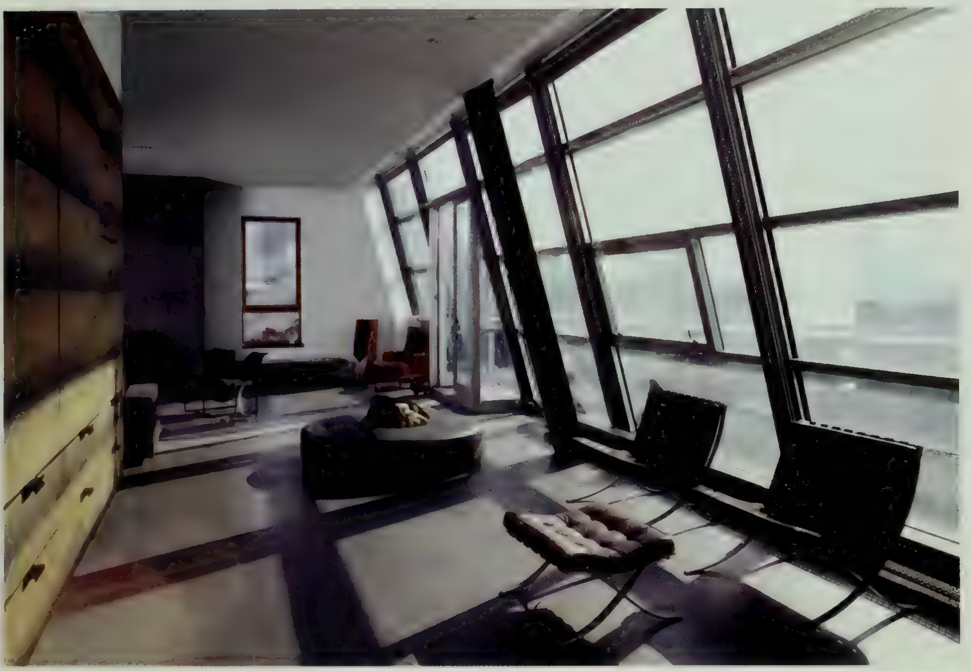


Sandwiched between the cutting stations' paired mirrors is a storage slot for blow-dryers and magazines. The ceiling's cloudlike lightness contrasts with the dark floor.



The entry opens onto the shorter leg of the L-shaped main living space, bordered by a terrace (opposite). The central spine (this pag facing the kitchen/dini area, is clad in bog oa

In New York City, Winka **Dubbeldam** counters her building's cascading facade with the **SCHEIN LOFT's** horizontal rhythms



William Weathersby, Jr.

A rippling curtain wall of bent glass flows dramatically down the front of architect Winka Dubbeldam's 11-story residential building, adjoining a 19th-century brick warehouse [RECORD, November 2004, page 198]. The two structures, in Manhattan's Ho neighborhood, merge as one, with floor plates aligned to house 23 artments. While the Modernist glass folds cascading beside the stoic storic structure call to mind a waterfall, a loft apartment on the eighth or evokes another part of the forest. Here, Dubbeldam, with her firm chi-Tectonics, created an asymmetrical circulation spine, clad in bog k, that anchors the loft with unexpectedly fluid geometry.

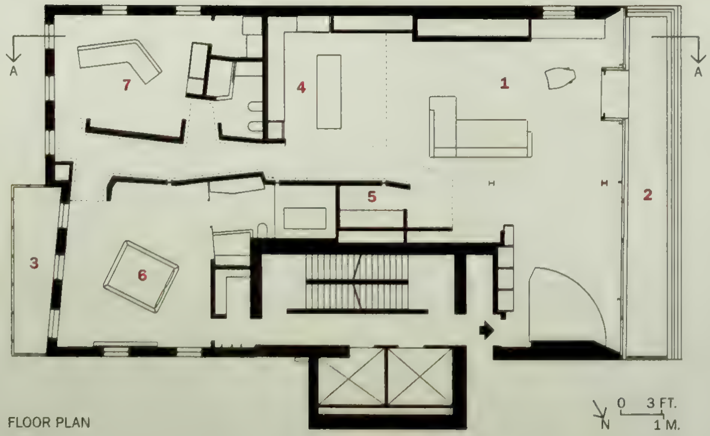
"The facade is a folded vertical landscape, and I wanted to ternalize that notion," says the architect, who was commissioned to sign the loft after she had completed the shell. For the two-bedroom artment, she adds, "the undulating folds of the curtain wall are apped inside out." The facade's transparency morphs into the wood ine's expressive horizontality and planar rhythms.

Dubbeldam, who made one of the lower-floor lofts her own me, says she welcomed the assignment to craft another interior here. er firm had delivered the condominium units, ranging from 1,900 to 00 square feet, to the developer as Sheetrock-finished, open-plan spaces th 12-foot-high ceilings.) Artist and photographer Peter Schein was her ent for the 3,200-square-foot, eighth-story apartment, a floor-through nning from west to east and perched two levels above the complex's 19th-century section. "Peter was open to sculptural forms," the architect recalls, "but he requested a well-defined transition zone between public and private spaces." Generous art storage and low-maintenance, environmentally friendly materials were also priorities.

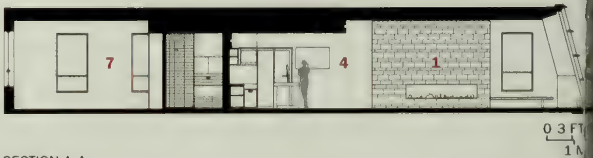
The apartment's entry opens onto the shorter leg of the L-shaped main living space. To the west, the slant of the floor-to-ceiling glazing, bordered by a terrace with sweeping views of the Hudson River and Lower Manhattan, immediately comes into view. The eastern wall introduces bog-oak-veneer plywood, a species Dubbeldam selected for its warm variegated hues. This sustainable material was waxed, formed into panels, and fitted into a black-metal framing system. Drawers within the wall accommodate art supplies and housewares, while the wall masks structural columns. Near the entry, an asymmetrical full-height section of drywall pivots to reveal a niche for oversize paintings and photography. As Dubbeldam points out, "The wall can be left open to create an ephemeral art installation."

Around the corner of the L, the fireplace's narrow, 7-foot-long

Project: *Schein Loft, New York City*
Architect: *Archi-Tectonics—Winka Dubbeldam, principal; Bittor Sanchez-Monasterio, Brooks Atwood, Ana Sotrel, project team*
Engineer: *Stanislav Slutsky (mechanical)*
Consultants: *Audio Video Systems (wireless integrated systems)*
General contractor: *New Industries*



FLOOR PLAN

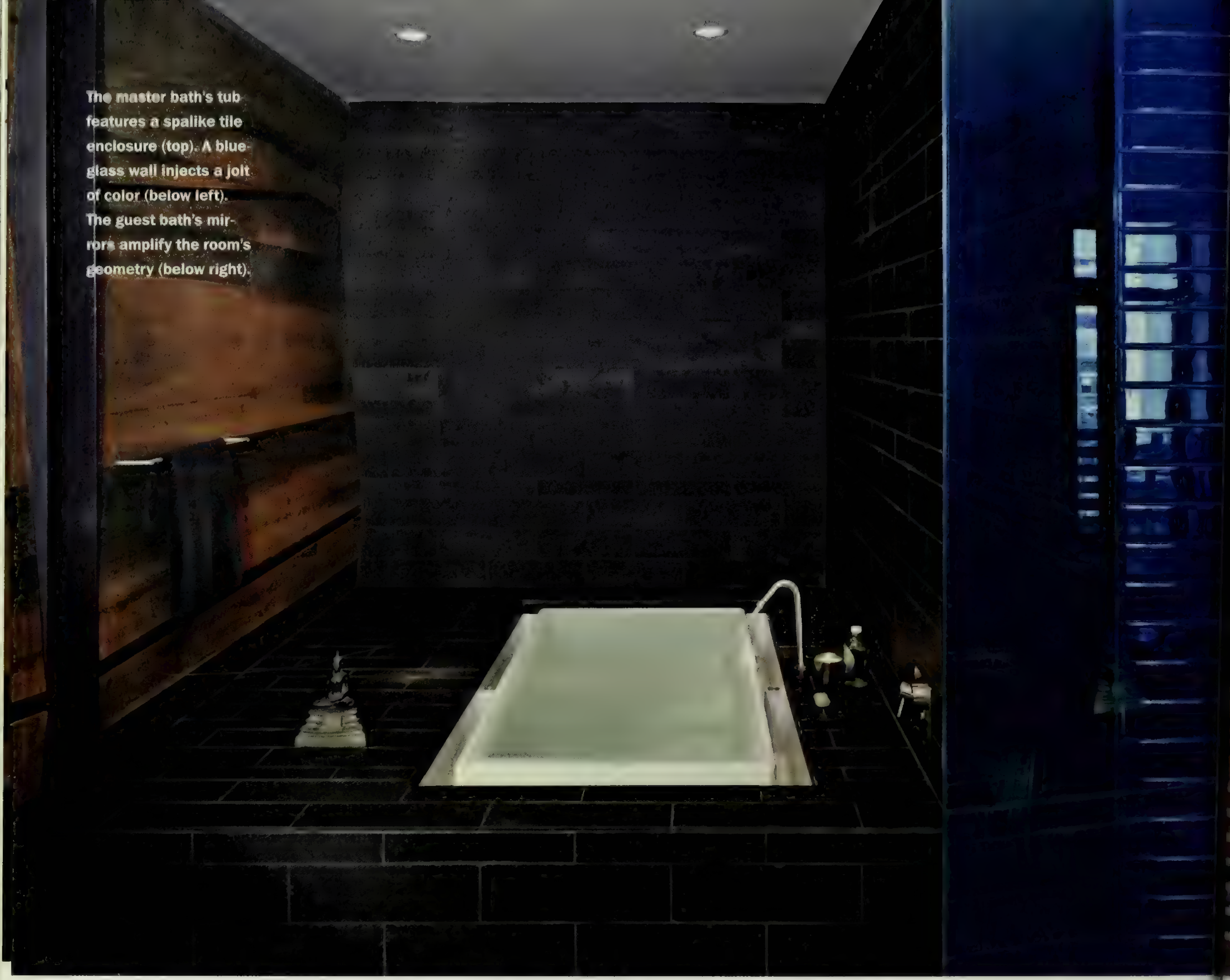


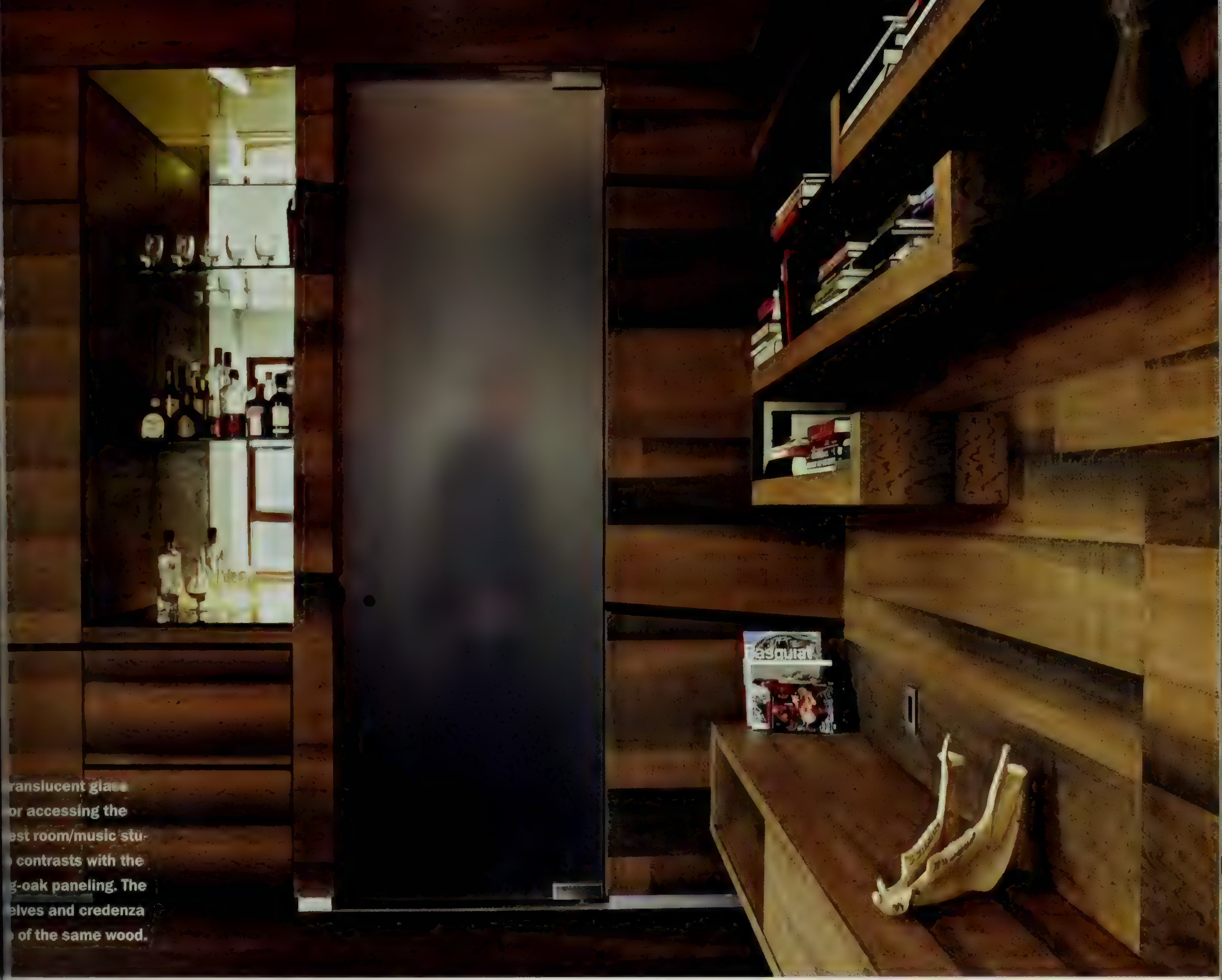
SECTION A-A

1. *Living room*
2. *Terrace*
3. *Balcony*
4. *Kitchen*
5. *Darkroom*
6. *Bedroom*
7. *Guest/music ro*

ne long, slender fire-
ace aperture is set
to a living-room
all of volcanic stone
ight). A wood table for
ork or dining slides
ut from beneath the
tchen island (right).
anted wood walls of
e central spine enclose the private domains of master bedroom (above and opposite) and guest room/music studio. The master bath, visible from the bedroom, is wrapped in slate tile and framed by aqueous blue glazing (opposite).

The master bath's tub features a spalike tile enclosure (top). A blue-glass wall injects a jolt of color (below left). The guest bath's mirrors amplify the room's geometry (below right).





ranslucent glass
or accessing the
est room/music stu-
contrasts with the
-oak paneling. The
elves and credenza
of the same wood.

erture slashes across the south wall, clad in smoke-hued volcanic stone. yond the seating area, a Parsons table pulls out from beneath the open chen's counter for work or dining.

The central hallway, connecting the living/dining/kitchen zones h the two bedrooms, delivers Dubbeldam's interior tour de force. ploding the Cartesian grid, the bog-oak-clad wall panels cant at multiple gles, creating a sculptural effect evoking a Brancusi totem writ large. e corridor's walls remain bare, emphasizing the wood's natural patina. erhead, an asymmetrical ceiling plenum masks HVAC systems and uses indirect fluorescent lighting. In addition to its aesthetic role, the ntral artery plays an environmental one. Its uninterrupted length allows ss ventilation between the western terrace and, on the loft's eastern ge, operable windows with a balcony.

Sections of the corridor walls pivot, becoming doors into the ster bedroom and guest room/music studio. Oak flooring and bog-oak ll paneling wrap the spaces, which have built-in credenzas, shelving egrated into the walls, and furnishings kept to a minimum.

The master bedroom's adjacent bath lies behind a wall of blue ss, evoking water and enlivening the otherwise monochromatic sleeping area. A shower with blue glass tile rises near a tub set in a platform clad in black slate. Low-key, recessed lighting enhances the private-spa ambience.

In the spare and clean-lined guest bedroom/music studio, bog-oak shelves stagger across one wall. A translucent door allows light into an adjacent alcove and guest bathroom. And in the corridor, an artist's workspace is tucked behind a section of the bog-wood wall.

Dubbeldam, the in-house architect living just downstairs, continues to consult on Schein's loft. (She is currently working with the artist on installing vibrant custom rugs.) Fine-tuning this interior in a building of her own design remains a work-in-progress—one very close to home. ■

Sources

Curtain wall: *UAD*

Stone: *Stone Source*

Hardware: *Häfele; Dorma; Nanz*

Tub, faucets, toilets: *Atta; Boffi; Kohler; Duravit; Lefroy Brooks; DuPont*

Kitchen appliances: *Gaggenau; Miele; Sub-Zero*

Tile: *Nemo*

Paint: *Benjamin Moore*

Lighting: *Lutron; Lightolier*

For more information on this project, go to Projects at **www.archrecord.com.**

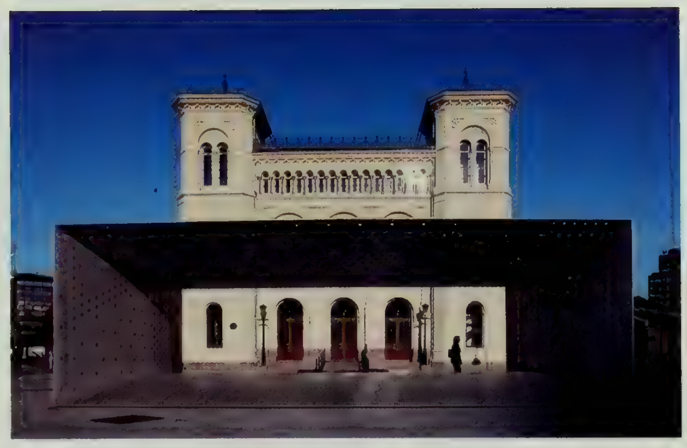
From the reception area, coated in lipstick-red resin, the contrasting brass-lined *Passage of Honour* comes into view.

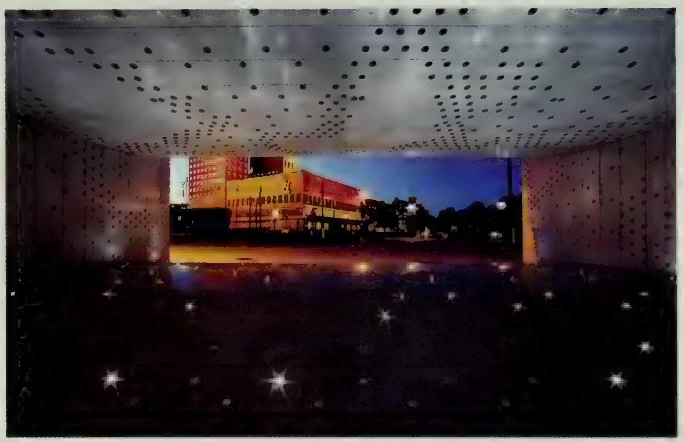
David **Adjaye** turns a former railroad station into the visually, intellectually, and spatially alive **NOBEL PEACE CENTER** in Oslo

y Raymund Ryan

Architecture and themes of peace sometimes coalesce in serene places, as in traditional Japanese gardens. But the task that faced London-based David Adjaye in designing Oslo's Nobel Peace Center involved the far more complicated issues of rife, as well as peace. The purpose of the center is to introduce visitors the history of the Nobel Peace Prize since its inception in 1905, and ost temporary installations revealing aspects of war and peace, umanity caught in inhumane conditions, and the struggle for human ghts around the world.

The site—or, more precisely, the venue—for the project is estbanen, a small, late-19th-century train station that reveals little of its iginal function. Literally a stone's throw from the Oslo Fjord, this decom- issioned, 16,000-square-foot station stands on an open plaza across from slo City Hall, a robust icon with twin brick towers. Selected through an terview process, Adjaye and his firm, Adjaye/Associates, were not permit- d to make any major changes to the landmark-protected structure. So ey took advantage of the urban space outside Vestbanen, placing a pavil- n right in the path of dignitaries walking to the Nobel Peace Center from e annual award ceremony at City Hall.





Outside the Vestbanen building, Adjaye erected *Canopy*, a sleeve of perforated, sandblasted aluminum with a curved floor and ceiling (above and right).

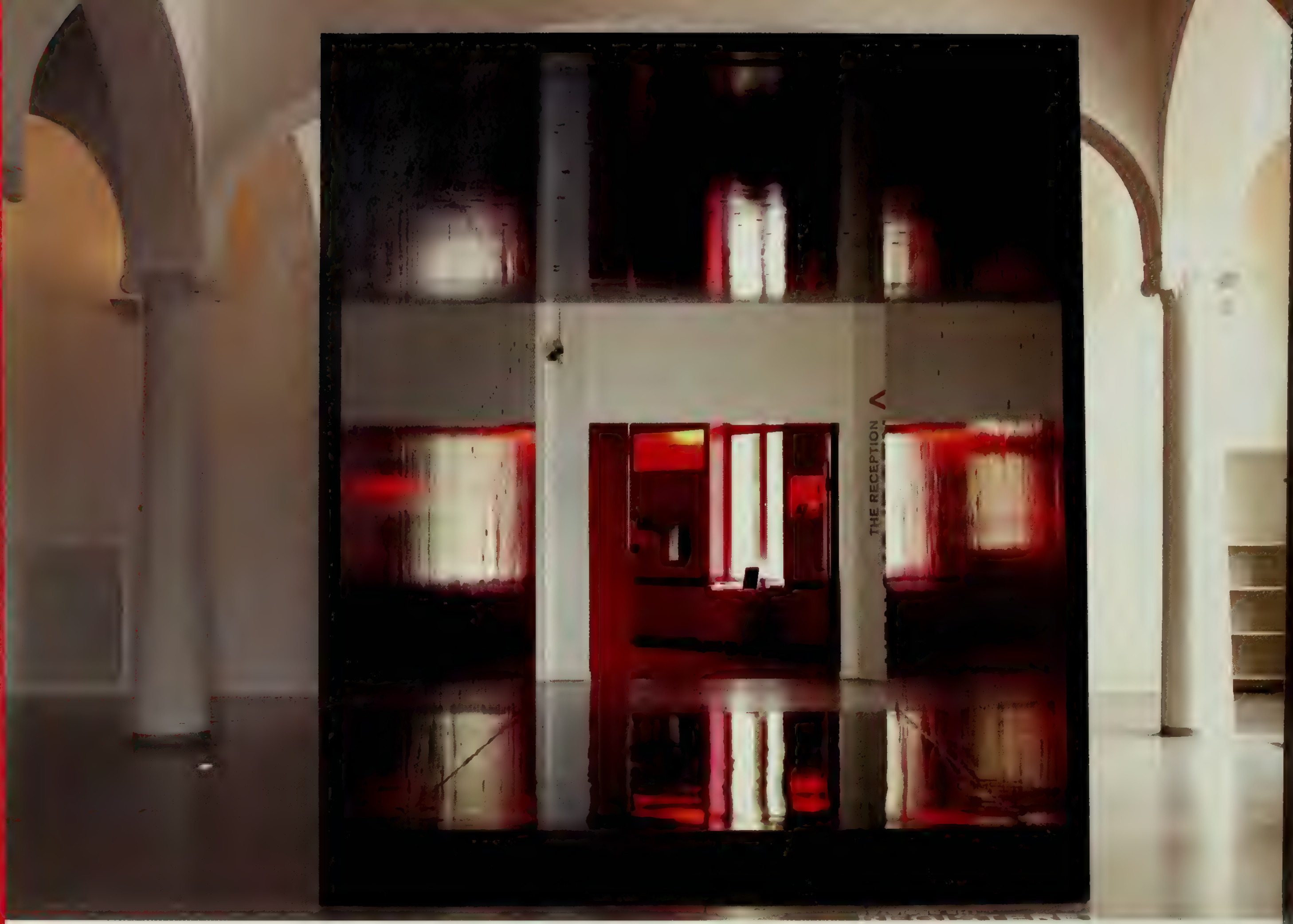
Called *Canopy*, the pavilion is a tubelike x, which, the visitor soon discovers, is akin to me of Adjaye's insertions within the Vestbanen ilding. A rectangular sleeve of sandblasted alu- inum, with a curved floor and ceiling, *Canopy* mains open along its two longer sides. A walk r bicycle ride) through it evokes the experience traversing a small covered bridge. Pierced th many small holes delineating the world's continents, the shell uses uminum that, ironically, was once slated for a Greek cannon boat.

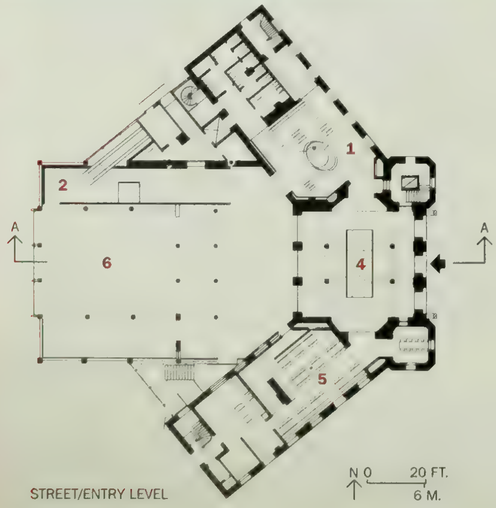
After passing through the freestanding *Canopy*, visitors can pro- ed indoors, into the Peace Center foyer, which Adjaye describes as "a liberate void." Here, as with many of his projects, he says he intention- y attempted "to have no thresholds." A vivid green space to the left of e entry offers visual counterpoint to a glossy red one to the right. In tween stands *Register*, a second sleevelike box, this one made of black RP (glass reinforced plastic). Like *Canopy*, it is perforated, but its holes, presenting major population centers, glow with green or red light, depending on that site's peaceful or warring status. Each puncture also emits the sound of a voice speaking in the respective city's language.

Adjaye chooses words like "jump" and "edit" to describe his scenographic approach to the dozen or so spaces inside the old railroad station. In places, he applied identifying finishes in radical fashion, as in the reception/bookshop area, where a vibrantly red resin covers the floor,

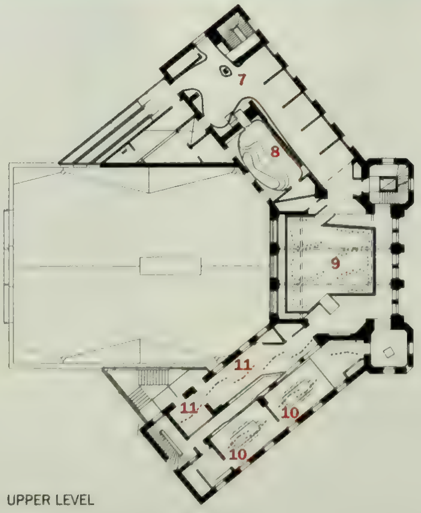
Project: *Nobel Peace Center, Oslo*
Architect: *Adjaye/Associates—David Adjaye, principal; Monsour El-Khawad, Nikolai Delvendahl, project directors; Rashid Ali, Jennifer Boheim, Hannah Booth, James Carrigan, Caroline Hinne, Paul La Tourelle, Yuko Minamide, John Moran, Karen Wong, project team*
Local architect: *Anders W. Anderson*

ymund Ryan is curator at the Heinz Architectural Center in Pittsburgh.



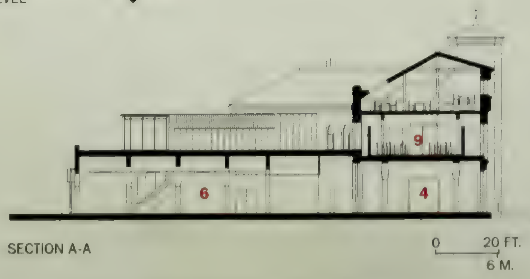


STREET/ENTRY LEVEL



UPPER LEVEL

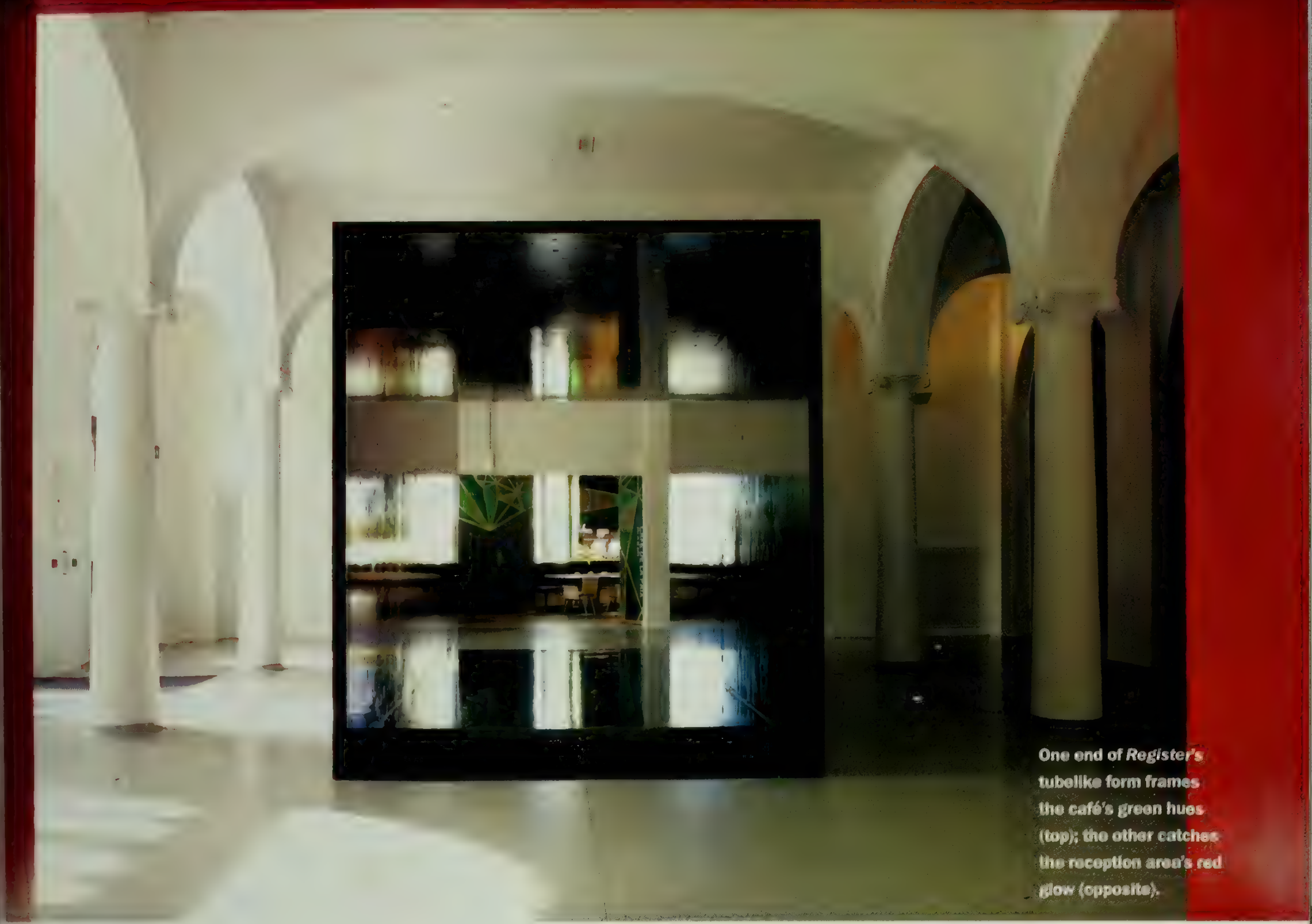
1. *Reception/bookstore*
2. *"Passage of Honour"*
3. *"Canopy"*
4. *"Register"*
5. *Café de la Paix*
6. *Temporary exhibitions*
7. *Gallery*
8. *Cinema*
9. *"Nobel Field"*
10. *Education/conference*
11. *E-room (for interactive education)*



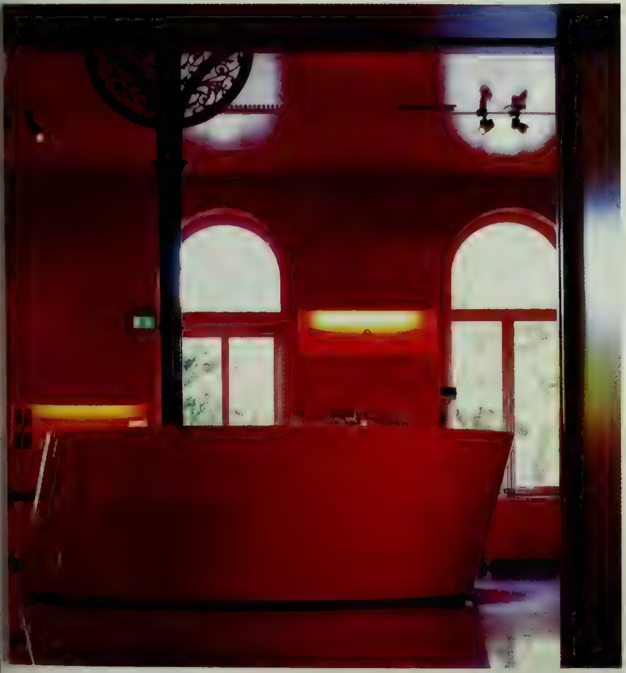
SECTION A-A

Vibrant red resin coats the floors, walls, and torqued counter of the bookstore/reception area (above and opposite, bottom). Adjaye's insertions, such as *Register*, a sleevelike box (above and opposite, top), reframe the existing space.

3



One end of *Register's* tubelike form frames the café's green hues (top); the other catches the reception area's red glow (opposite).



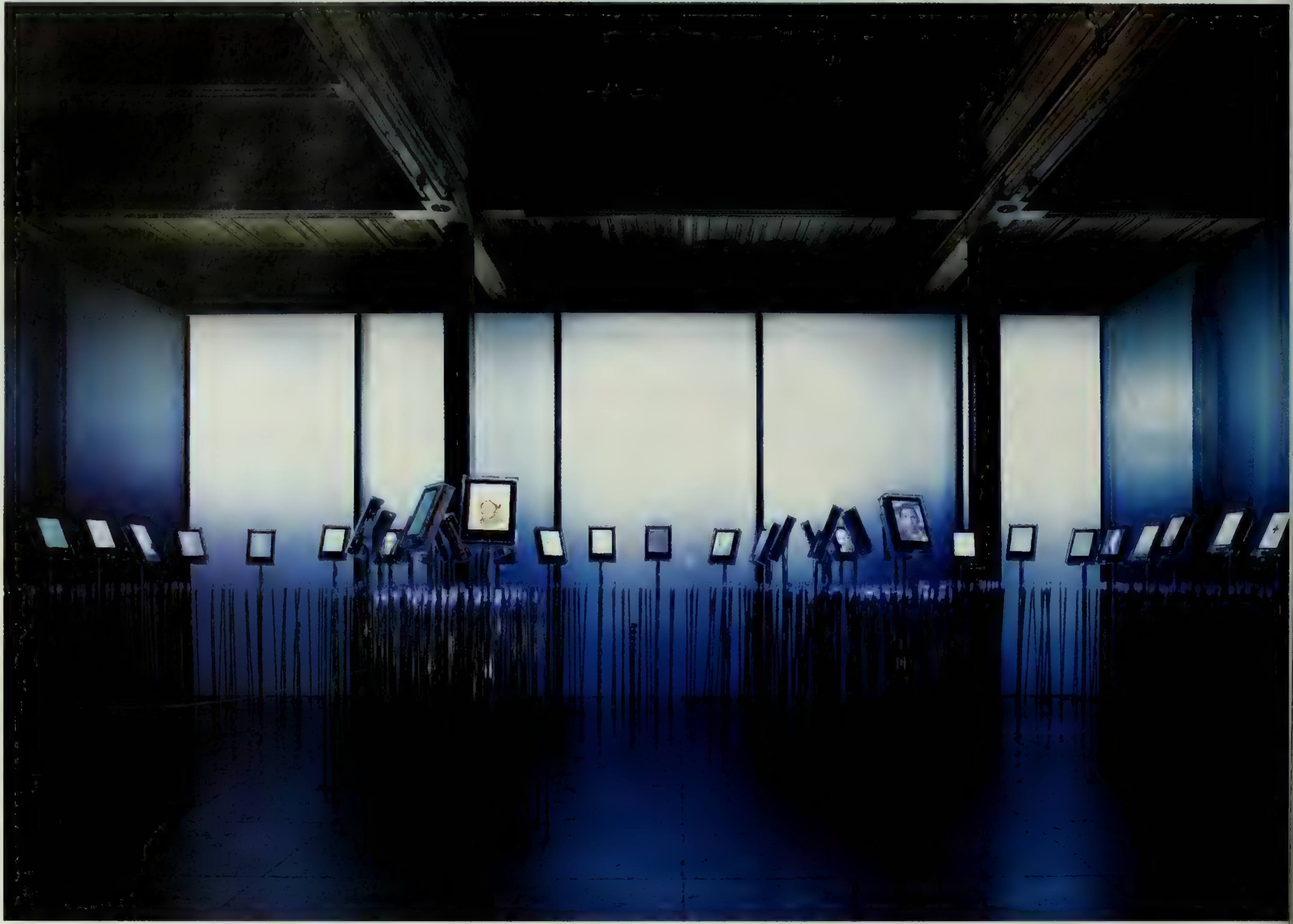
walls, ceiling, bookshelves, display units, and the torqued sales-and-information counter. Perpendicular to the reception area, the architect inserted an additional room-size open box, this one entitled *Passage of Honour*. With flush sheets of brass lining its floor, ceiling, and two longer walls, the space is both seductive and momentarily disorienting, multiplying reflections in all directions. But soon the visitor's attention turns to a wall-like projection into the *Passage of Honour*, which presents a video on the most recent Nobel Peace Prize laureate.

A temporary exhibition space, adjacent to *Passage of Honour*, straddles the station's central axis, the terminus for lines once coming into Oslo from the west. An escalator leads up to a temporary gallery wrapped in cedar, as well as a felt-lined screening room. Directly above *Register* and beneath Vestbanen's restored coffered ceiling is *Nobel Field*. Here, translucent glass panels form a corral around a blue rubber floor, where acrylic stalks glow with LED lights and support small screens, bearing electronic portraits of past Nobel Peace laureates—Adjaye calls it "a digital garden." Developed with David Small, an MIT-trained designer of interactive graphics, these monitors activate when approached, each introducing a single Peace Prize winner.

Visitors then proceed to Vestbanen's south tower, where an interactive book relates Alfred Nobel's life story, and continue past *The Wallpapers*, a digital display with further information on the laureates, before descending a glazed stairwell back to ground level.

Inside the highly reflective, brass-lined *Passage of Honour*, visitors can view a video presentation on the most recent Nobel Peace Prize laureate.

Throughout its
Nobel Peace Prize has inspired
of people
work to
peace



***Nobel Field* (above and left) features a blue rubber floor, where acrylic stalks glow with LED lights and support small screens, bearing electronic portraits of Nobel Peace laureates.**

Informality and glamour are hallmarks of Adjaye's work; h tends to treat an eclectic palette in Minimal fashion (with sublimated thresholds and few articulated joints) in pursuit of spatial effect. In Oslo he plays new against old, and the temporal and temporary against th permanent. For the Peace Center's Café de la Paix, he collaborated with London artist Chris Ofili. (Adjaye had designed Ofili's home of London's Brick Lane in 1998, and the artist and architect collaborated o the installation of Ofili's work at the 2003 Venice Biennale.) They covered the café's walls and ceiling in shades of cool green: polygons caught in crystalline web of golden yellow lines. It is, says Adjaye, "where you com to rest … a green envelope," an antidote to the fiery red reception area Conceptually, these lines trace the network between the same citie *Register* represents. And so, this final interior, a place of refreshment afte the exhibitions' lessons and richly varied spaces, celebrates the intercon nectedness of the world. ■

Sources

LED: *Intravision; Crescent Lighting*

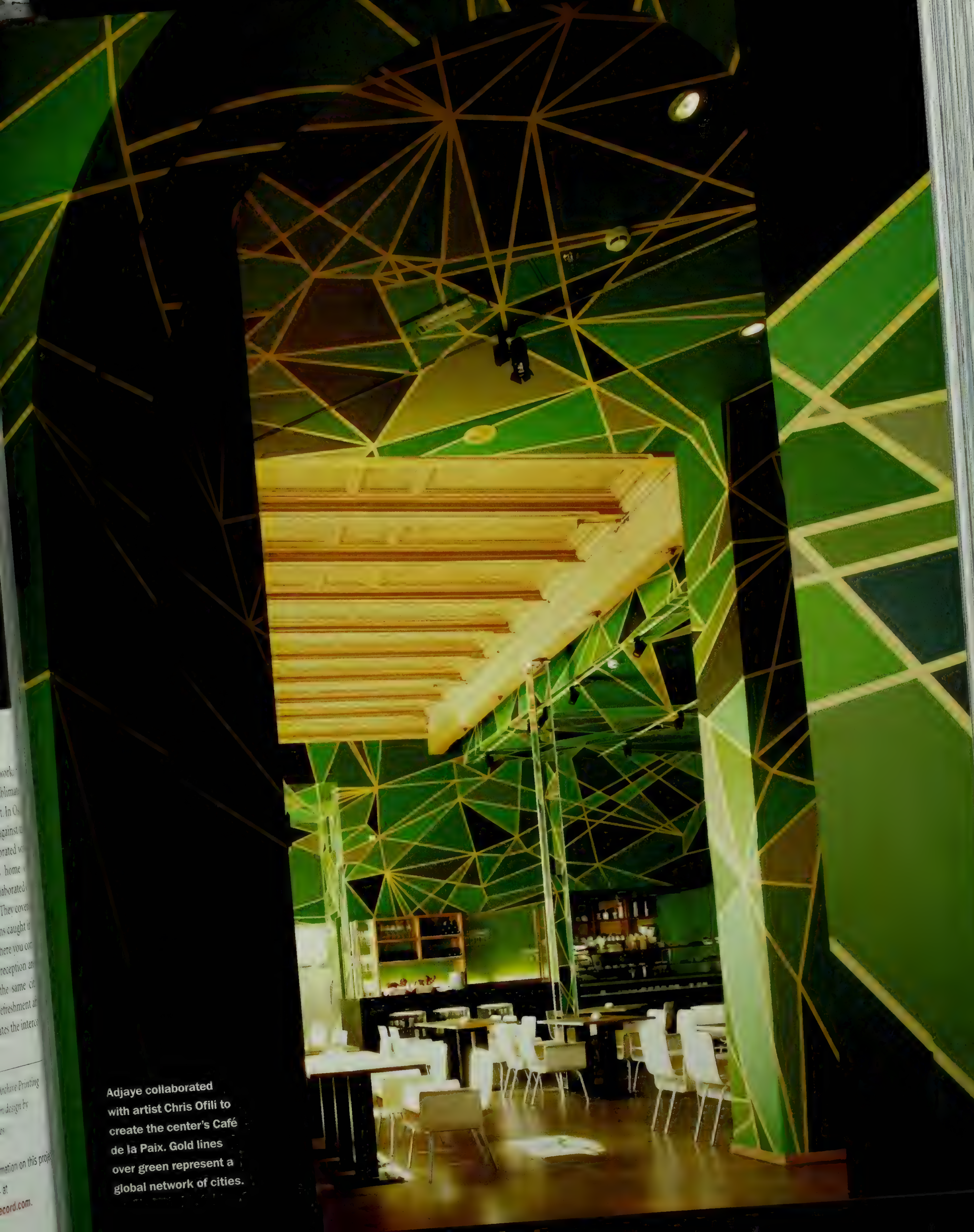
Lighting: *Nemo*

Flooring: *Flowcrete (resin); Dalsouple (rubber)*

Furniture: *La Palma; Azumi; Idema (custom design by Adjaye/Associates)*

Wallpaper: *The Archive Printing Company (custom design by Adjaye/Associates)*

For more information on this project go to Projects at **www.archrecord.com**.



Adjaye collaborated with artist Chris Ofili to create the center's Café de la Paix. Gold lines over green represent a global network of cities.

The reception area's 3D wall cover, made of paper, was designed by Tracy Kendall of London. Another artist, Alyson Shotz, created the hanging sculpture with oval magnifying lenses (in partial view).

René **González** transforms an old warehouse into **KARLA**, a serene and glowing event space and production venue in Miami

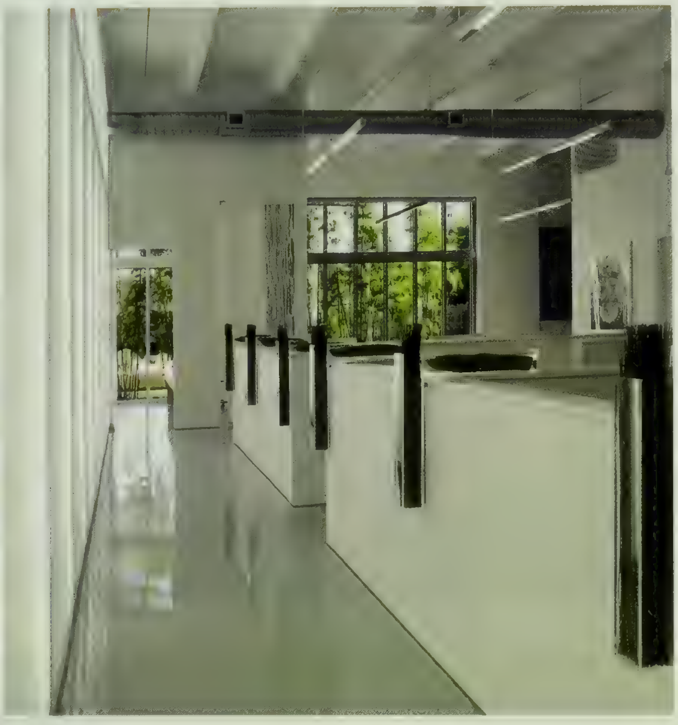
y Wendy Moonan

I wanted a sequence of spaces where we could bring clients to 'seduce' them," says Karla Dascal, founder of an event-organizing business that caters to such high-profile clients as Madonna, Ricky Martin, and the office of President George W. Bush. For her company, Karla onceptual Event Experiences, Dascal envisioned "a place where clients uld get inspired ... with enough openness to let them imagine."

The new headquarters, simply called Karla, is just off Biscayne ulevard in Miami's trendy Wynwood Arts District, occupying a 12,000-uare-foot warehouse and an built adjacent lot of equal size. ascal needed a venue for throwing rties, making sets (such as the dding decor she created for an isode of TV's *Extreme Makeover*), d preparing floral arrangements r catered events. The program o included corporate offices, a nference room, a flower cooler, rkspace, and ample storage.

Even before finding the rehouse property, Dascal signed Miami architect René González. e was impressed by his instal-ion for *Design Matters*, an hibition of industrial design, fashion, and graphics that he curated in 00 at Miami's Museum of Contemporary Art. As she recalls, "He plied common materials like bubble wrap in a way you would never e them. He made them very elegant." Dascal later sought out González d outlined her program for him. The event planner remembers plaining, "We're a full-service production company—we do weddings, -related parties for collectors during Art Basel, branding and corporate ntity work, and dinners for the President. I want a Minimal space ose materials speak to me."

A Minimalist approach suited González, who was born in Cuba t raised in south Florida, and had worked in Los Angeles for Richard eier (on the Getty Museum) and Frank Israel before opening his own Miami firm, now with six architects. In converting the warehouse into Karla, González turned the property's empty lot into a lush, subtropical garden, which you must traverse to enter the structure. Here, huge, single-paned glass doors between lobby and garden heighten ambiguities in the indoor/outdoor relationship.



The interior—even its office cubicles (above)—engages in a dialogue with the garden (left).

The building now features a simple floor plan with innovative material applications. Entry, conference room, and work space form a series of high-ceilinged, boxy white spaces, some with glowing, light-infused walls. The built-in reception desk seems to float above the high-gloss epoxy floor. Behind the desk is handmade, 3D white wallpaper by artist Tracy Kendall. Etched-acrylic, floor-to-ceiling panels, backlit through blue filters, define the reception area's other edges. The idea, says González, is to "create vertical planes that seemingly go on forever, emphasizing a volumeless quality of

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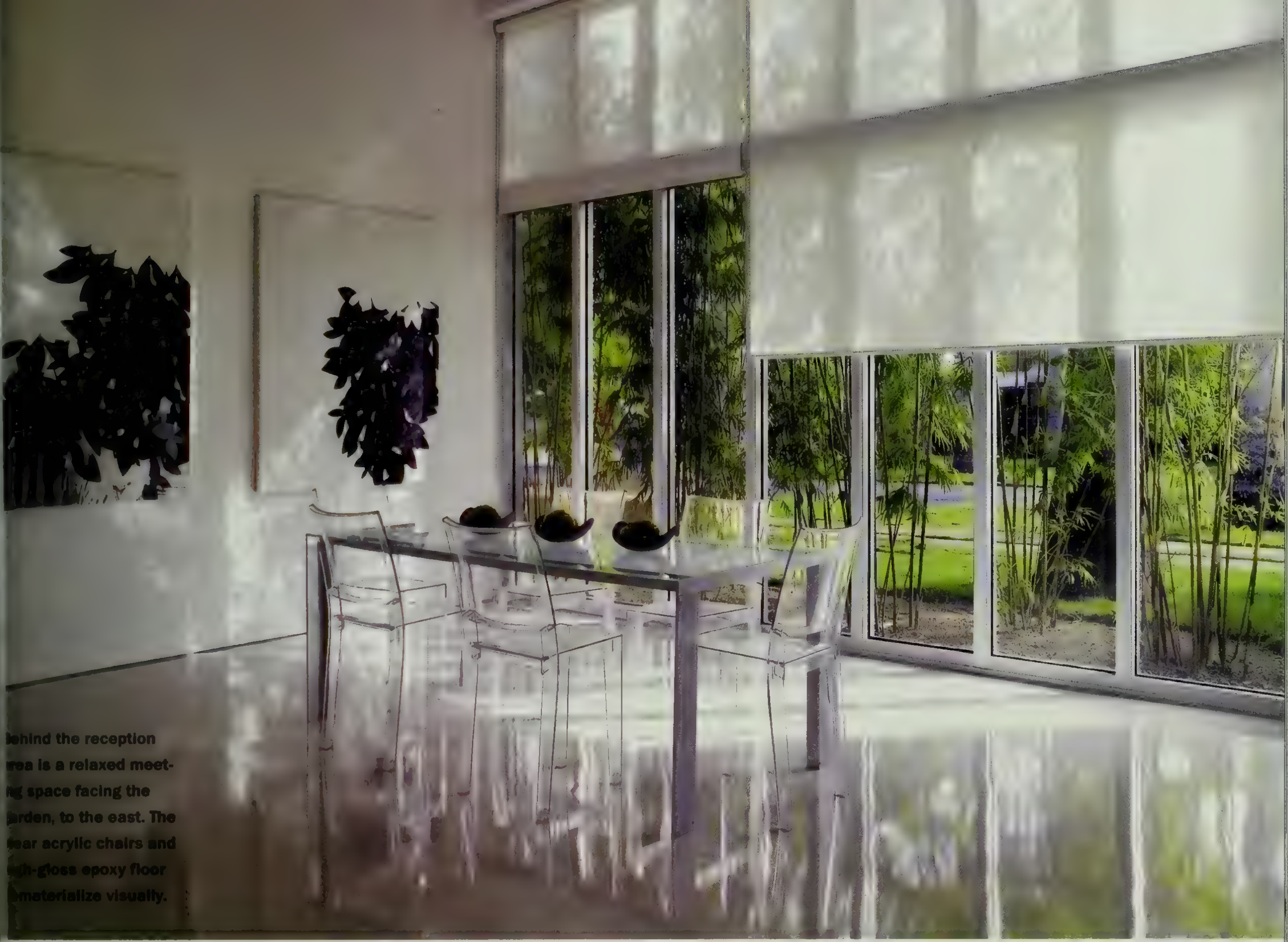
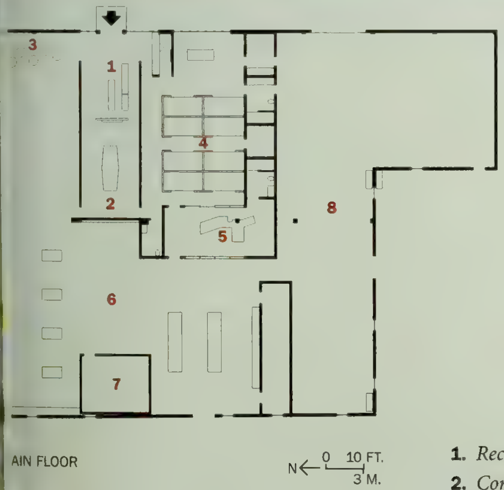
ndy Moonan is a contributing writer to Architectural Digest *and the antiques umnist for* The New York Times.

Project: *Karla, Miami, Florida*
Architect: *René González Architect—René González, principal; Monica Vazquez, project director*
Engineers: *Douglas Wood and Associates (structural); Vidal (m/e/p)*
General contractor: *Madison Construction*

Against high-gloss epoxy floors and luminous, backlit walls, the entry area presents sleek benches, a hunk of driftwood, and Shotz's hanging sculpture (above left). The conference room includes a blue resin table designed by González (above right). Each event gets its own installation (right).



ehind the reception
rea is a relaxed meet-
g space facing the
arden, to the east. The
ear acrylic chairs and
gh-gloss epoxy floor
materialize visually.



AIN FLOOR

1. *Reception*
2. *Conference*
3. *Installation space*
4. *Open-office area*
5. *Executive office*
6. *Production and floral-design studio*
7. *Flower cooler*
8. *Warehouse space*

space.” He furnished the entry area minimally, with sleek Italian benches, a hunk of driftwood that his client found, and a hanging sculpture with magnifying lenses projecting kaleidoscopic reflections onto the walls.

In a narrow conference room next to the entry area, Dascal meets with potential clients. In this area, two luminous, backlit walls of translucent acrylic cast reflections onto another seamless floor of shiny epoxy—all surfaces that dematerialize visually. The architect also designed the 12-foot-long table with a blue resin top. The custom light fixtures, made of Styrofoam cups, are by British designer Paul Cocksedge. While one wall has a monitor for video presentations, the opposite elevation alternates panels of clear and translucent glass, allowing glimpses of set-building, floral-arranging, and party-prep activities in the work space next door—a back-of-the-house peek intended to spark the imagination of the company's clients.

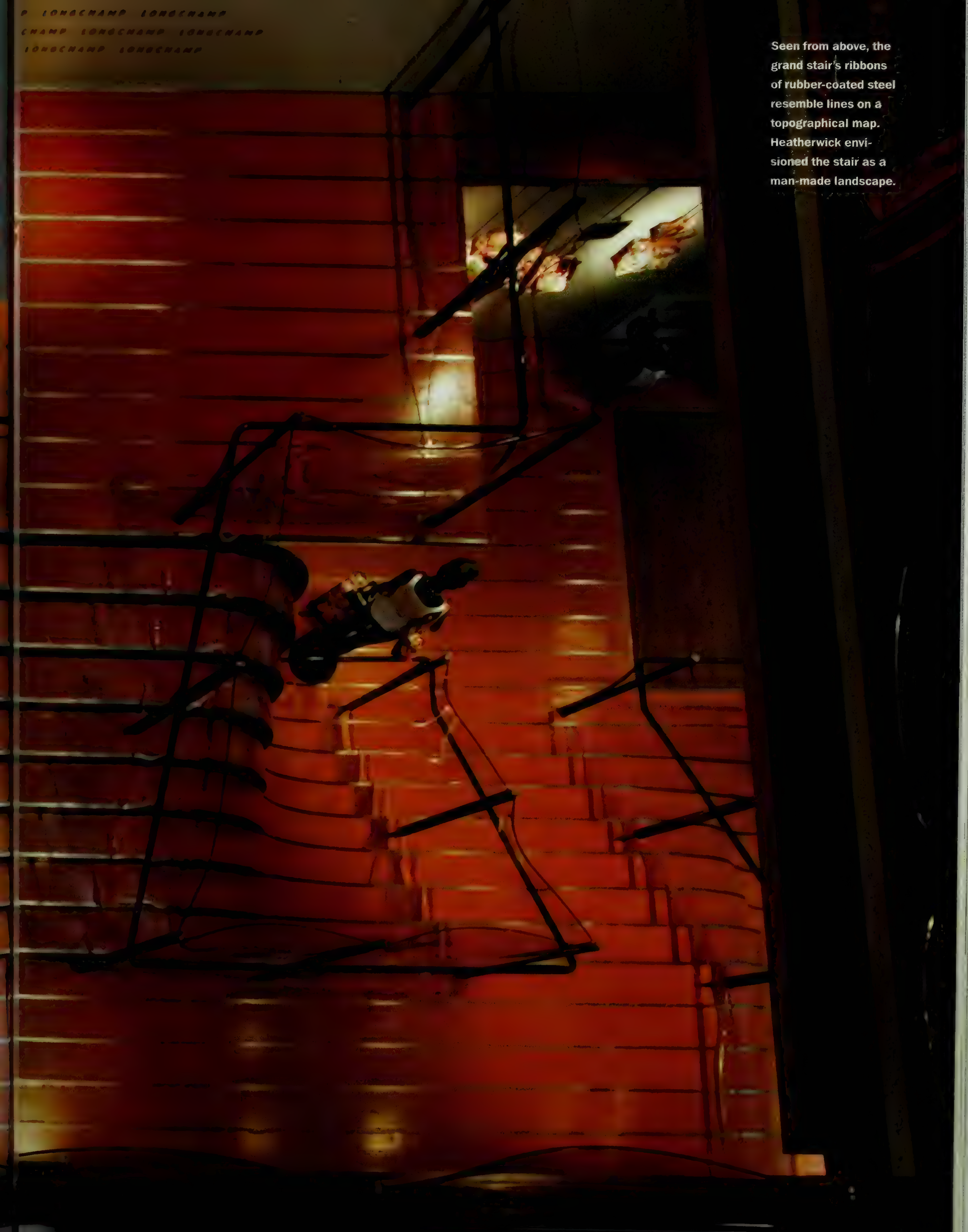
Earlier this year, the project won the 2006 AIA Honor Award for interior architecture. Now Dascal is talking to González about adding onto the place. “René captured exactly what I wanted here,” she says. “It's luminous and has the opulence I was looking for.” From the minute you walk in, it speaks of her enterprise—and ultimately seduces you. ■

Sources

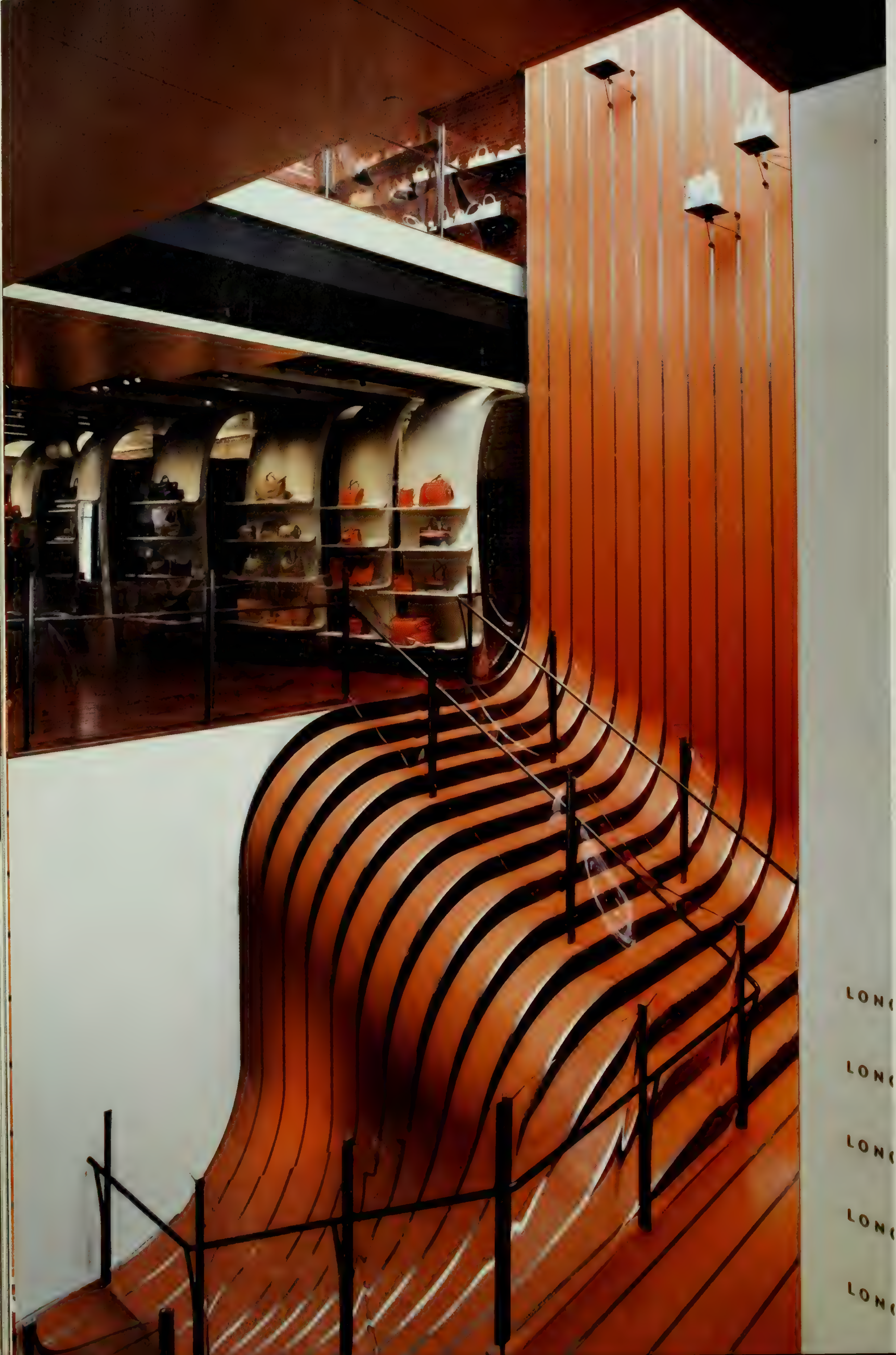
Aluminum storefront: *YKK America*
Lighting: *Bartco; Artemide; Luminis*
Plumbing fixtures: *Valve; Duravit*

For more information on this project, go to Projects at **www.archrecord.com**.

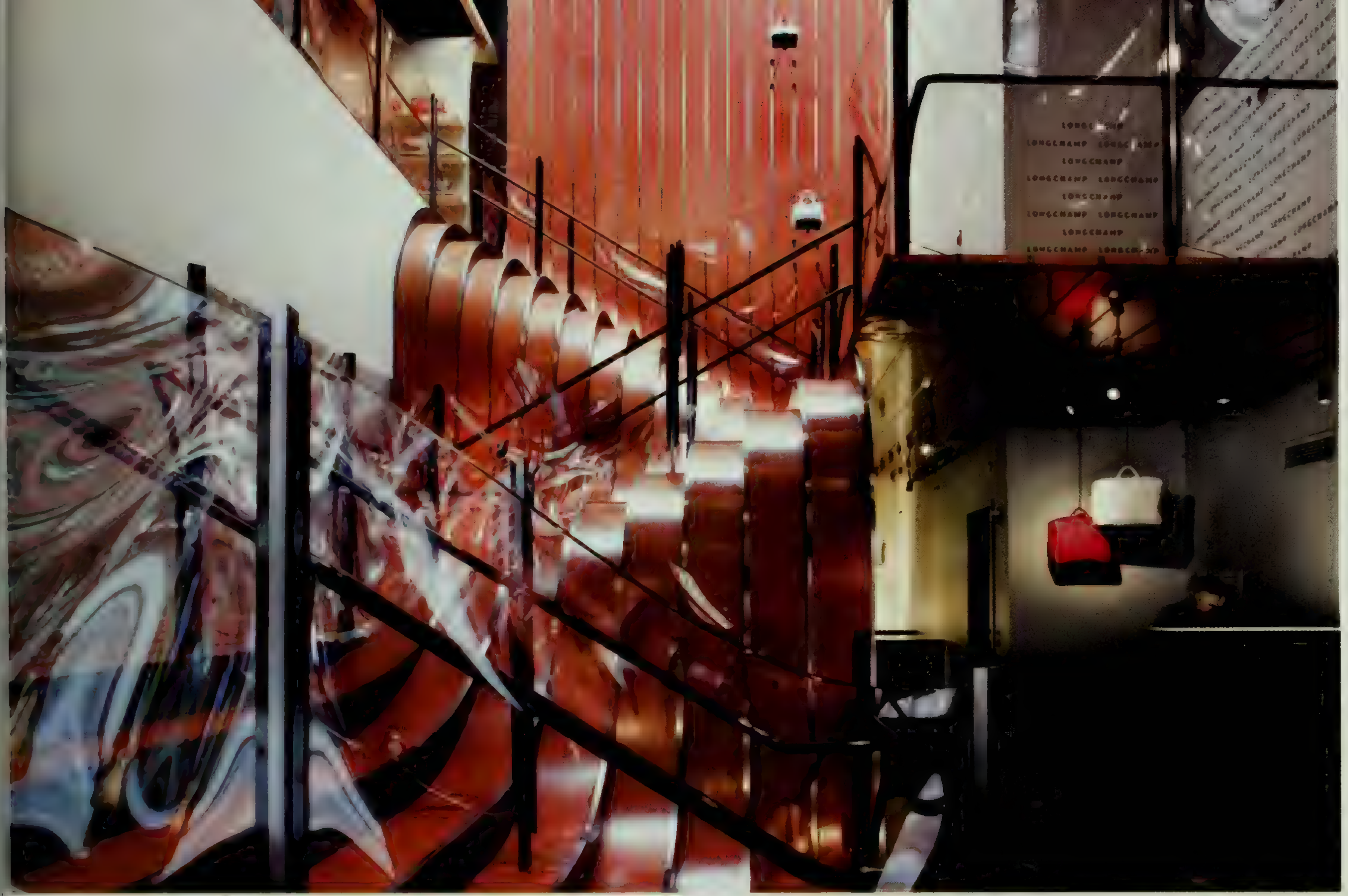
Thomas **Heatherwick's** fluid design gets shoppers to flow inside and upstream at New York City's LA MAISON UNIQUE LONGCHAMP

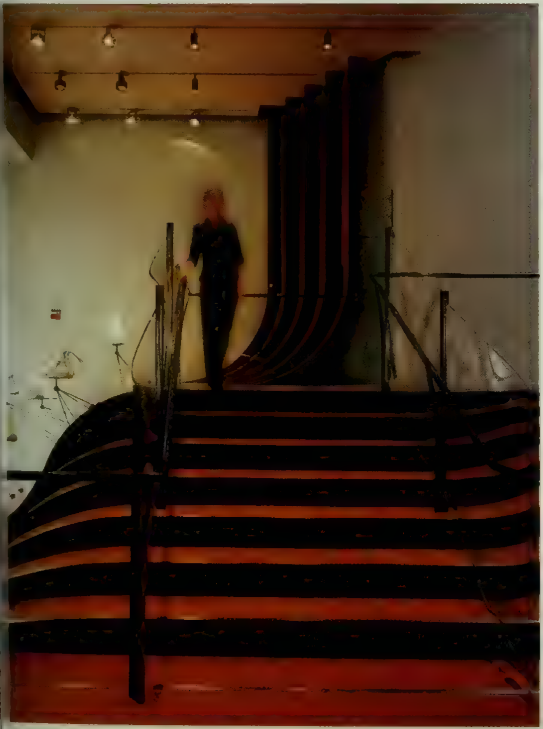


Seen from above, the grand stair's ribbons of rubber-coated steel resemble lines on a topographical map. Heatherwick envisioned the stair as a man-made landscape.



For the new stair (left and opposite two), Heatherwick Studio carved a 46-by-27-foot atrium, rising 60 feet, into the existing building. A skylight helps draw people upstairs. The designers used a thermoplastic material instead of glass, to create the sensuously curving balustrades. Each of the 57 panels is unique.





By Clifford A. Pearson

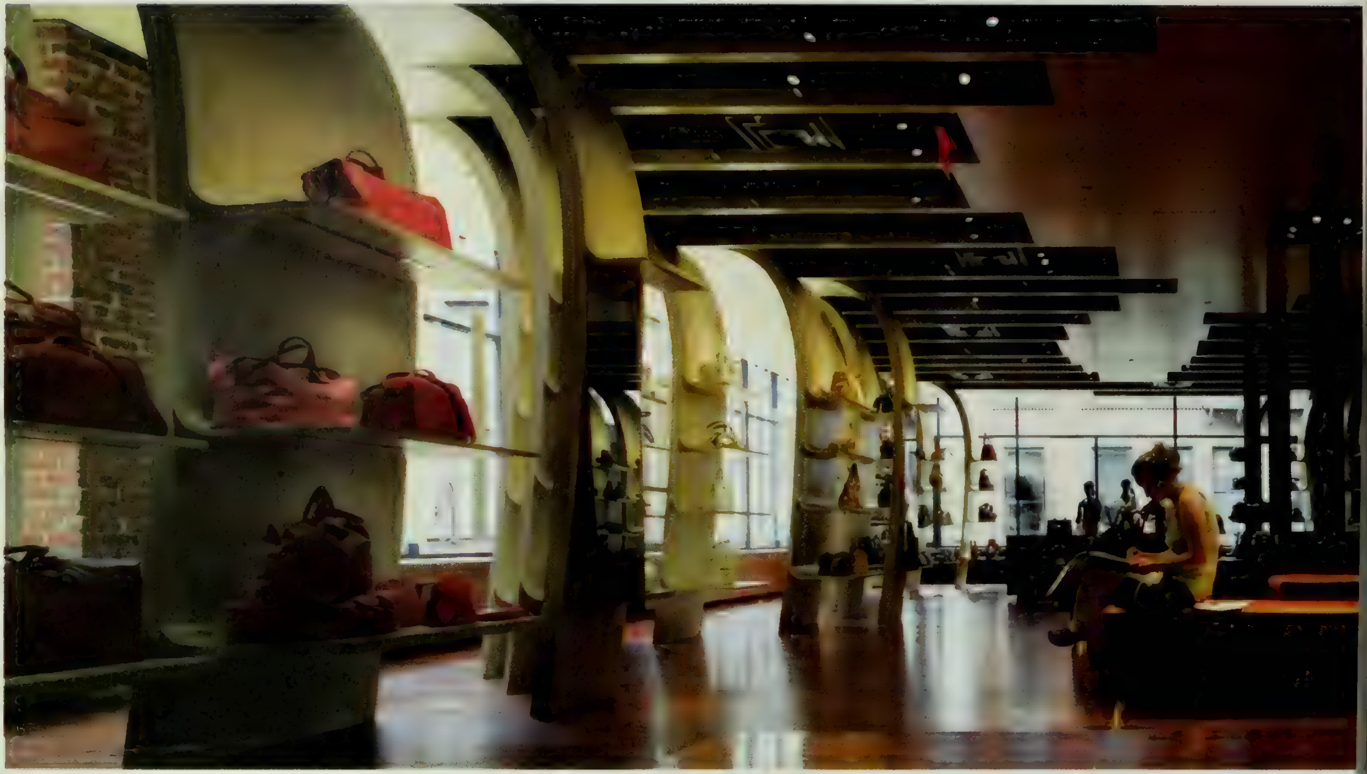
Zippers are both functional and sexy, holding things together while offering the promise of revealing what's hidden inside. At La Maison Unique Longchamp, a three-story retail facility in New York City's SoHo neighborhood, the London designer Thomas Heatherwick applies zipper principles to architectural space, teasing shoppers to come inside and see what's upstairs.

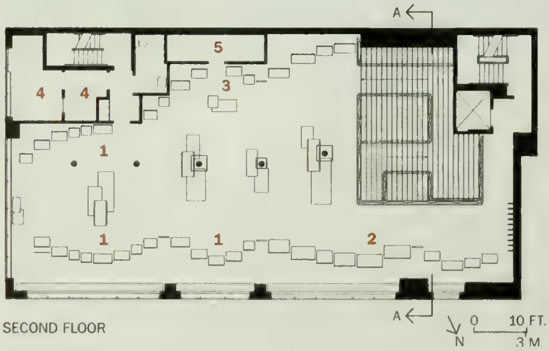
A flagship store for Longchamp, a French leather-goods company, the project resides in what Heatherwick describes as a "runty shoe box of a building" that posed all sorts of problems for creating a successful retail operation. The plain-Jane structure offered Longchamp ground-floor space that was not only limited to 1,500 square feet, but also squeezed awkwardly between a clothing store, in the prime corner spot, and a chocolate shop. But upstairs, Longchamp could spread out with a 4,500-square-foot second floor, and a newly added third floor with a 1,700-square-foot showroom plus a wraparound terrace for entertaining wholesale buyers. The challenge for Heatherwick was to grab attention with only a small streetfront presence and then entice people to schlep up a flight of stairs to the main retail space.

Trained at the Royal College of Art, Heatherwick runs a 38-person studio that designs everything from sculpture, such as *Sitooterie II*,

---

Project: *La Maison Unique Longchamp, New York City*
Designer: *Heatherwick Studio—Thomas Heatherwick, director; Tom Chapman-Andrews, project designer; Jem Hanbury, designer*
Architect: *Atmosphere Design Group*
Engineer: *Gilsanz Murray Steficek*
General contractor: *Shawmut Design & Construction*

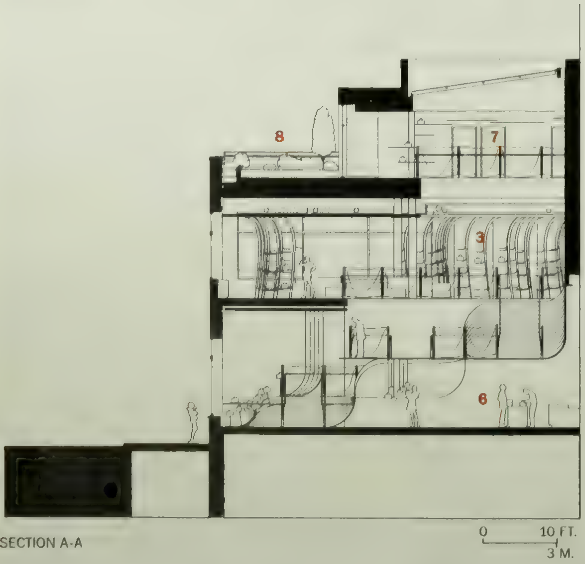




SECOND FLOOR

1. *Handbags*
2. *Luggage*
3. *Leather goods*
4. *Office*
5. *Storage*
6. *Checkout*
7. *Showroom*
8. *Roof terrace*

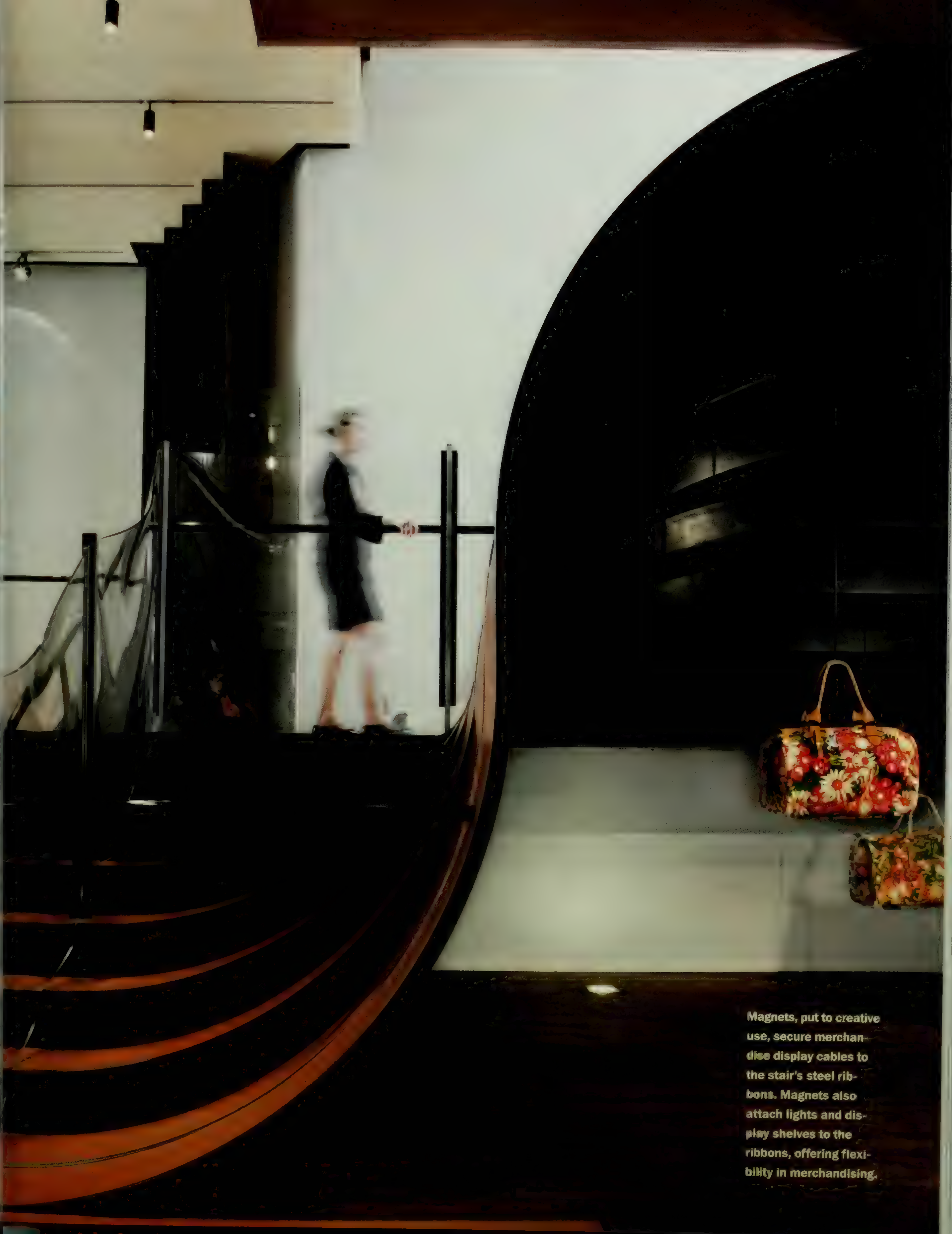
Strips of laminated ash curl down from the ceiling to create shelves for handbags and other leather goods Floors, seats, and display cases are maple.



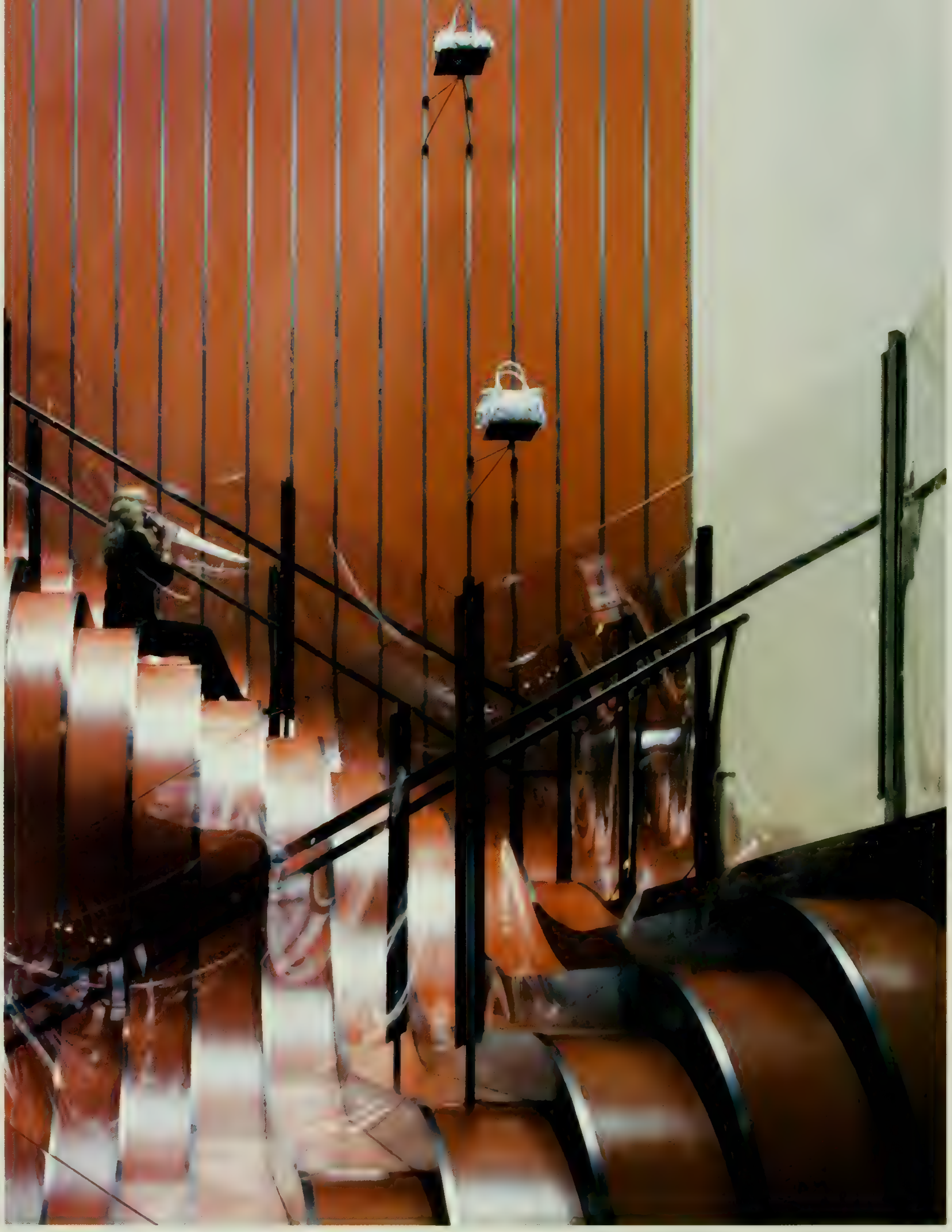
SECTION A-A

in Essex, England [RECORD, June 2004, page 131], to the Rolling Bridge, London [RECORD, December 2004, page 230]. In 2004, Longcham debuted a handbag designed by Heatherwick featuring a zipper that snak up and around the outside. When unzipped, it reveals a satiny fabric lay inside and nearly doubles the bag's volume. Instead of a clasp at the to hidden magnets close the bag.

The designer employed similar strategies at Longchamp's Maison Unique, using undulating ribbons of rubber-coated steel to crea a stair that seems to unfold as it rises, and orchestrating a procession fro a tight, ground-floor lobby to the expansive second-floor retail. And as wi the handbag, he found an inventive use for magnets—this time to secu light fixtures and shelves anywhere along the metal ribbons. Heatherwi calls the stair a "landscape," a topographical feature inserted within a 46-l 27-foot atrium, cut from the corner of the building. The atrium rises 60 f to a sloped skylight and required 55 tons of steel. Daylight from the top the vertical space helps draw people upstairs, he says, noting, "Like inse people are attracted to light." When he envisioned the stairscape, he thoug of "a hillside with goats climbing up winding paths."



Magnets, put to creative use, secure merchandise display cables to the stair's steel ribbons. Magnets also attach lights and display shelves to the ribbons, offering flexibility in merchandising.



Steel poles and channels hold curving balustrade panels of PETG. Used in the aerospace industry for windshields and othe applications, PETG is a thermoplastic that Heatherwick heated in sheets, allowing the forc of gravity to warp the material in the process. The designer considered flat-glass balustrades too lifeless for the curva- ceous stair, favoring instead a material that would reflect and refract light in multiple ways.

After designing the remarkably fluid stair, Heatherwick had trouble figuring out how to deal with the necessary balustrades. "When we imagined standard flat-glass balustrades, it ruined the sense of movement," he says. "We wanted the glass to drape like fabric." Ultimately, his team decided against glass in favor of a thermoplastic called PETG (polyethylene terephthalate glycol), used in the aerospace industry for windshields. By heating the material in sheets and letting the force of gravity slump each one differently, the designer created 57 PETG balustrade panels that form an animated, transparent border, reflecting light in idiosyncratic ways.

Just as Heatherwick bent the stair's rubber-and-steel ribbons so they morph from treads into a three-story wall, he treated the ceiling, flooring, and display shelves on the second story as a set of continuous surfaces. By creating a laminated-ash ceiling and peeling down strips, he created curving vertical supports for ash shelves. Dark maple settees a display cases continue the material palette of the floor boards, as if eme ing from the surface below rather than sitting on it.

While big sculptural moves can sometimes come across as ov the-top, especially in a modest-size store, La Maison Unique exert curvaceous charm with a fresh zip to it. ■

Sources

Skylight: *Wasco Products*

Ash ceiling and maple partitions: *Imperial Woodworking Enterprises*

Resilient flooring on stairs: *Nora*

Ambient lights: *Litelab*

Thermoplastic balustrade: *Talbo Designs*

For more information on this proje go to Projects at **www.archrecord.com**.

There was a service bulletin on the last revision to change the tolerance in order to ensure that the ABS was effective at very low temperatures, has this been reflected in the design?

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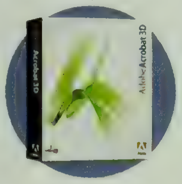

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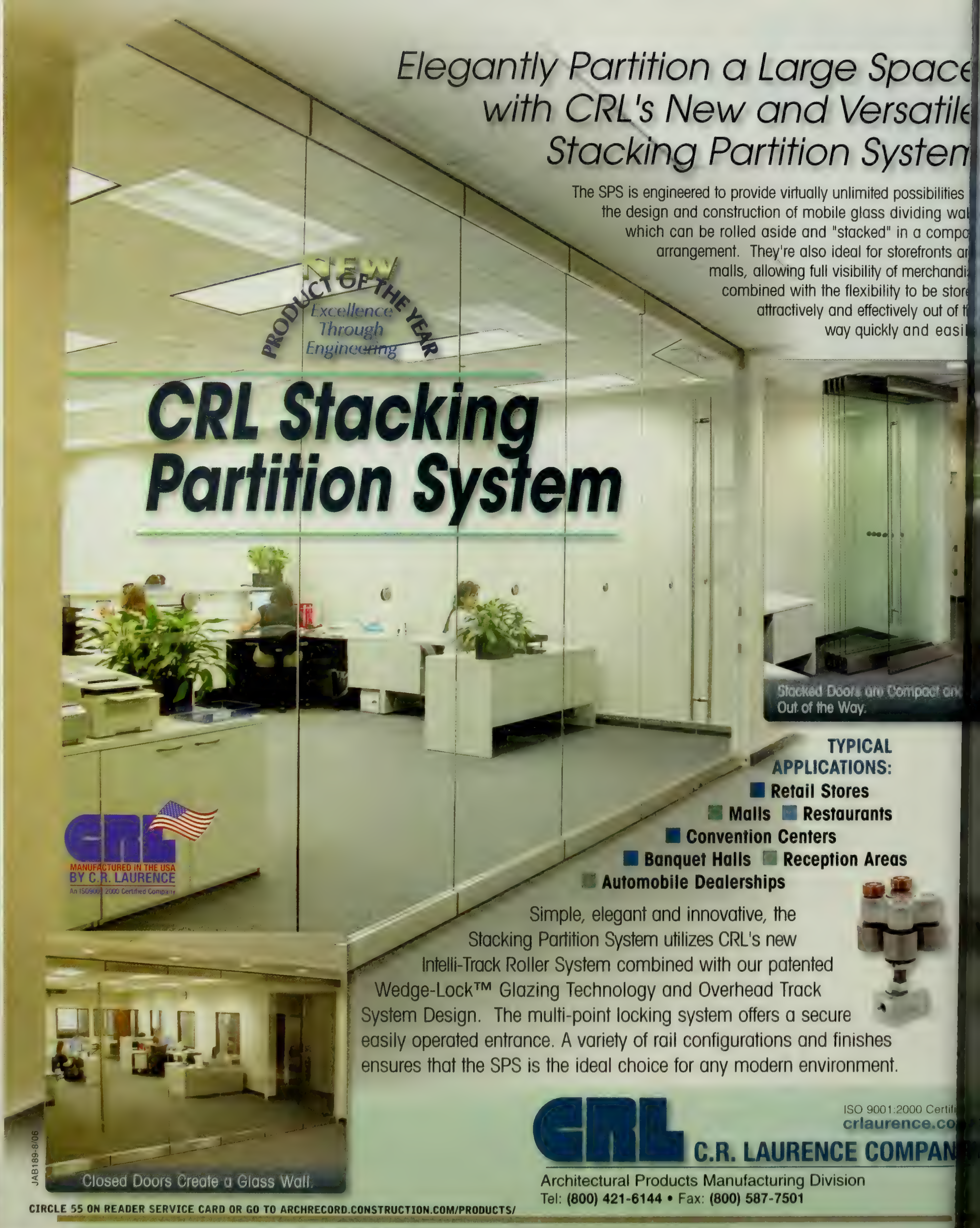
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malls, allowing full visibility of merchandi
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Selling the Light of Day

NCENTIVE PROGRAMS AND INCREASED DEMAND FOR BUILDING-INTEGRATED PHOTOVOLTAIC NSTALLATIONS HAS PUSHED RESEARCH AND INNOVATION AT COMPANIES AND UNIVERSITIES

y Russell Fortmeyer

The sun shines a little brighter in Aspen, Colorado. Since the city lies 7,945 feet above sea level, snow-covered mountains tend to reflect a azzling light on clear winter days. While elevaon certainly plays a role, the city expects its eliance on renewable resources like wind and ydroelectric—which accounts for 57 percent f its electricity production—to eliminate the ispersal of 42 million pounds of greenhouse ases from the atmosphere through 2010.

When the city selected Willis ember, AIA, to design a public service and orage pavilion for its Wagner Park, the archict decided early on he would test the waters f Aspen's 2000 commitment to adopt green uilding initiatives.

"The City of Aspen likes to believe it as the first city in Colorado to produce its own electricity," Pember says. So that myth was something we exploited to sell them on the idea of hotovoltaics on the building." His final design, the Wagner Park Edge, ncorporates a 3-kilowatt thin-film photovoltaic array sandwiched etween two layers of glass mounted to a structural canopy blanketing the uilding. The array supplies the pavilion's needs while also contributing nough energy back into Aspen's electrical grid to power a typical singleamily home for the year.

Although photovoltaics on buildings remains a curiosity for any architects, most people involved in the photovoltaics (PV) industry hink projects like the Wagner Park Edge will become the rule in the near future. While the market for PVs has exploded, building owners expecting to see quick returns on investment still find the technology disappointing. As such, the additional benefit of energy production often follows as a bonus to the use of PVs as a highly visible sustainable billboard or as a path to points in the U.S. Green Building Council's LEED rating program.

Steven Strong, of Solar Design Associates in Cambridge, Massachusetts, has experienced a surge in his energy consulting business in the past few years, owing to what he considers solar power's new "cool factor," a desire for more secure sources of power, and, especially, higher energy costs throughout the world. "Traditional economic analysis no longer applies; it's just that most people don't understand that yet," Strong says. "We're never going to return to the 1960s and 1970s where we had infinite amounts of cheap energy." Strong adds that the consideration of utility demand charges at peak periods of energy use, as well as the growing unreliability of the electrical grid, has led to an increased cost-effectiveness for PVs. "This is

Aspen's Wagner Park Edge includes a glass-laminated photovoltaic installation as its sole power source (above and right).

CONTINUING EDUCATION

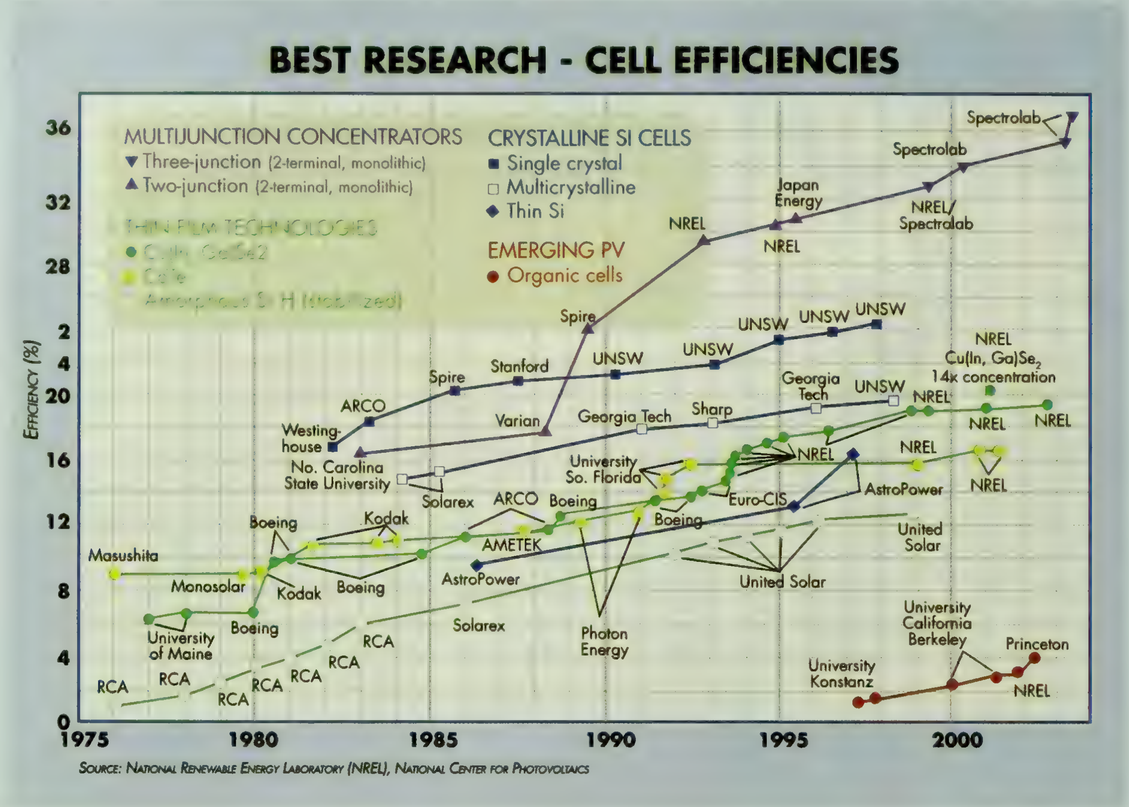
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 156 and follow the instructions.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Describe new options to incorporate photovoltaics into buildings.*
2. *Discuss the various incentives for using photovoltaic technology.*
3. *Compare the benefits of different types of photovoltaic cells.*

r this story and more continuing education, as well as links to sources, hite papers, and products, go to **www.archrecord.com**.



Source: National Renewable Energy Laboratory (NREL), National Center for Photovoltaics

The National Renewable Energy Laboratory charts photovoltaic efficiencies for develop-ments worldwide (le Research and corpo development have led to a rash of new photovoltaic produc beginning with BP Solar's conventiona silicon cells (oppos top left) and Shell Solar's modules (op-site, bottom right).

a glimpse of the future, and it's not an aberration."

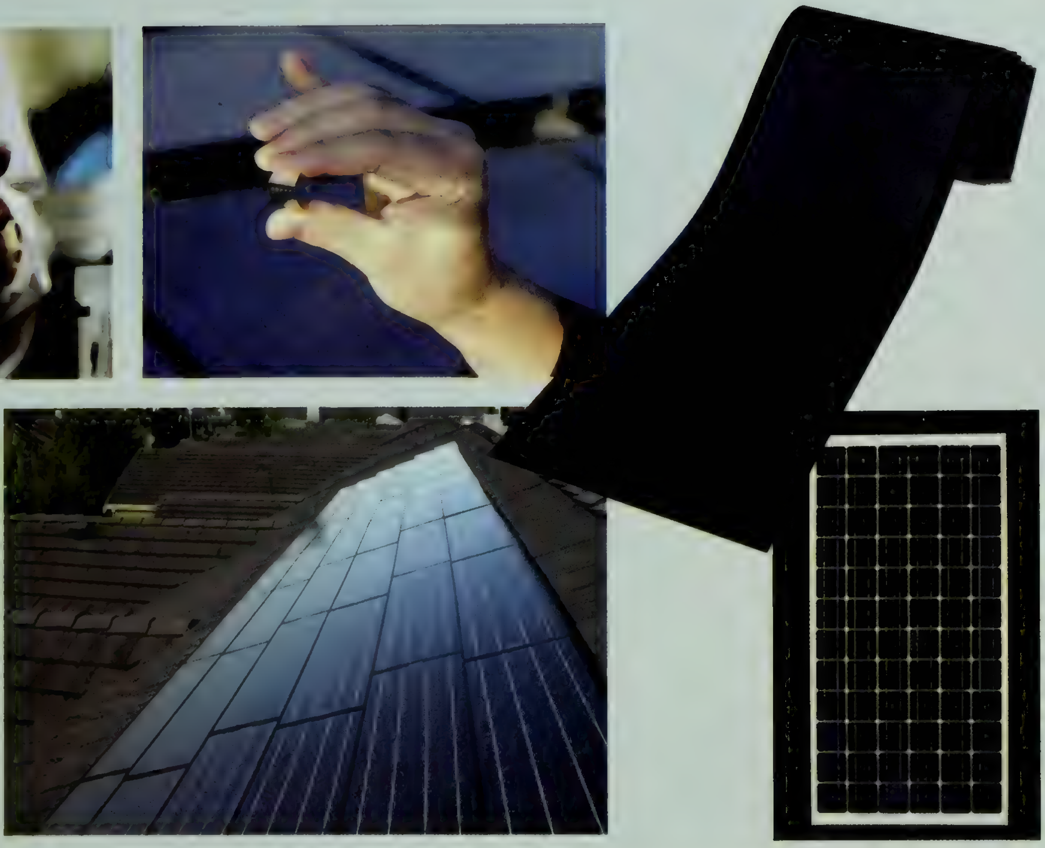
The availability of subsidies, as either a tax credit or an energy rebate, still compels many a decision to incorporate PVs into a project. Solar consultants and researchers, however, argue for a larger view, positioning PVs as a significant component of an overall energy-efficiency design strategy. Behind the scenes, manufacturers and university and government research teams endeavor to develop new PV technology, seeking to find PV solutions that balance energy performance with aesthetic value—something lacking in many past solar installations. Since the PV industry shares silicon production with the semiconductor industry, all of this increased development occurs with the backdrop of a serious silicon supply shortage—though the industry considers it merely a hiccup. Regardless of the issues, the building PV industry in 2006 is positioning itself to expect rapid growth in demand and technology in the coming years.

Research drives the industry

Although solar research in European countries and Japan has contributed significantly to the development of those countries' photovoltaic markets—the largest in the world owing to widespread government incentives—the U.S. funds a number of research projects through the Department of Energy to push PV technology in new directions. The U.S.'s National Renewable Energy Laboratory (NREL) in Golden, Colorado, coordinates many research efforts, acting as a clearinghouse of information and approaches to the development of PV technology, either through partnerships or its own projects.

Photovoltaic technology consists of four different typologies, which together account for nine different varieties of PV cells either production or development (refer to the NREL chart for the b research cell efficiencies). The most common are single crystal and m-ticrystalline silicon cells, which the NREL estimates to represent m than 90 percent of the market. These cells, combined into modu s, function as additional components to buildings: awnings, canopies, r rooftop arrays. Multijunction concentrators simply stack up these ce ; a laboratory cell developed by Spectrolab and the NREL achieved n efficiency of 34 percent in direct sunlight, by far among the high t efficiencies recorded outside of purely theoretical models. Efficienc is measured as a ratio of the cell's actual electrical energy output to e available sun energy incident on the device. Commercially available c s can achieve anything from 5 to nearly 20 percent.

Most new building-integrated PV development uses thin f n technologies, mainly because thin film PVs lower manufacturing c ts and can be applied to more building materials. Amorphous silicon, o -Si, is used in United Solar Ovonics' Uni-Solar thin-film produ s, garnering a 7.5 percent efficiency per NREL testing. Subhendu Guha t United Solar, observes the difference between conventional silicon cell at 250 micrometers thick, and thin film—which with no crystalline str ture is half a micron thick and therefore much more flexible—is eno h to substantially reduce installation costs associated with its use on bu ing roofing membranes and other materials that are already compon ts of conventional building. United Solar's researchers have recently tur d their focus toward nanocrystalline technologies, with a crystalline str ture somewhere between amorphous and single-cell silicon. A n re predictable crystalline structure, Guha says, would allow for a lower st



Newer technologies nclude thin-film photovoltaics, such as the rganic cells in development at Georgia Tech top middle); United Solar Ovonics' Uni-Solar product that rolls nto a building's roof top right); and Kyocera Solar's photovoltaic oof shingles that have aught on with residenial home builders in California (near right).

nd, eventually, a higher efficiency.

Industry has also embraced other thin-film technologies. Shell olar developed a copper indium diselenide (CuInSe2) module that chieved a 13.5 percent efficiency last year. Cadmium telluride (CdTe) thinlm cells, which achieve efficiencies around 15 percent in laboratories, are ill in development and aren't available commercially for large-scale use. drawback of CdTe cells is the high toxicity of cadmium, which could ose environmental issues in the event of a fire.

All of these technologies generally depend on expensive raw aterials and a relatively high manufacturing cost. The price of silicon ses and falls with demand in the semiconductor industry, which plains the current lag in supply for the PV industry. This lack of supply a very real issue; United Solar's Guha says his company is sold out of oduct for the rest of 2006. These considerations have motivated search development of organic photovoltaics, which could be synthezed with chemicals any number of ways and are significantly thinner an even thin-film silicon cells.

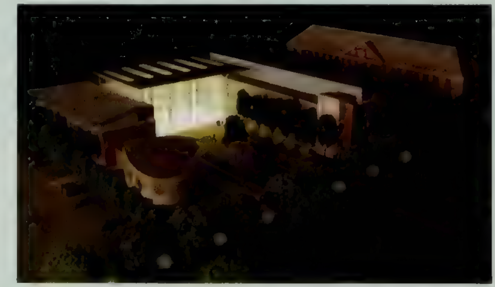
HE TRUE PROMISE OF ORGANIC HOTOVOLTAIC TECHNOLOGY IS THE LEXIBILITY OF ITS APPLICATION.

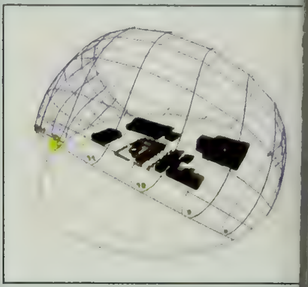
Dave Ginley, an NREL researcher, focuses on organic PV cells, hich don't integrate silicon—a material with a finite production supply— their production. While Ginley finds organics' infinite supply appealing, thinks their true promise is the flexibility of their application. The bond ructure of a conventional silicon molecule is a predictable crystalline structure, whereas organic molecules have a "hair" chain sprouting along the sides of their double-bonds. This hair can be tinkered with, in a way that adds or removes electrons, to develop a molecule with the exact properties you want. "This isn't to say we know what those exact properties are," Ginley says. "If we did, we'd be done, and we're not."

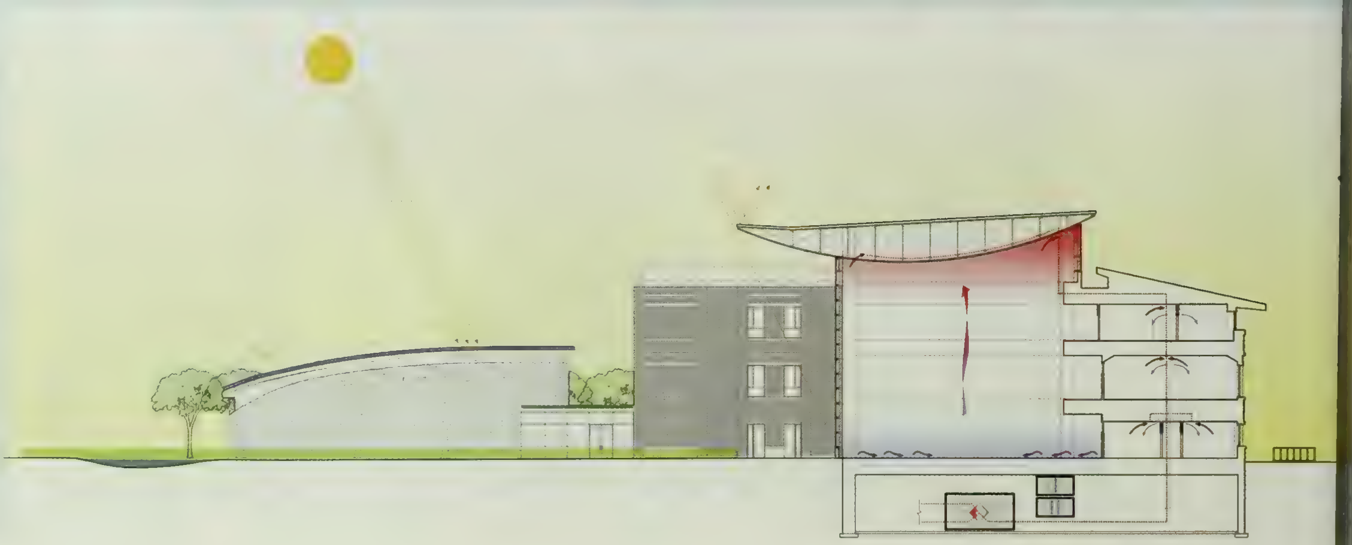
Organic PVs, though at least 10 years away from commercial application, offer the possibility of design considerations such as fabric structures and basically any surface that can withstand a printing process. Organic PVs also have the potential to lower costs, since a single metric ton of a petrochemical could supply all of the organic solar cells you would ever want to make. Where the thickness of silicon-based cells are measured in micrometers, organic PVs can be reduced to a few hundred nanometers, similar in production and use as plastics.

Bernard Kippelen, a researcher at the Georgia Institute of Technology and a partner in a related start-up company, Lumoflex, considers organic PV materials akin to an ink, capable of printing on any surface. "Because they are thin, absorb light fairly efficiently, and can be processed at room temperature, you can envision solar cells with fairly interesting form factors in terms of application," Kippelen says. Among the major obstacles organics must overcome, degradation ranks high. Kippelen says printing organic PVs onto any surface could potentially shorten the PV's lifespan, which is why he suggests the short-term use of organic PVs will be confined to small devices, like RFID tags or personal electronics. Eventually, this market could grow to include portable tents or large-scale fabric structures.

Among the remaining challenges for organic PV researchers, hastening higher efficiencies is key to the technology's success. Currently, Atelier Ten is working with Pelli Clarke Pelli Architects in New York on the design of the Business Instructional Facility at the University of Illinois in Champaign-Urbana (near right). Atelier Ten developed a sun path diagram (far right) to chart the sun's angles of incidence across the building's surface in order to gauge the effectiveness of installing 4,000 square feet of photovoltaics on a section of the roof (below).







efficiency hovers between 5 and 6 percent, while organic PV's theoretical efficiency of 24 percent competes directly with silicon.

NREL's Ginley thinks the greatest potential for organics lies in the organic LED (OLED) industry, which could easily adapt itself to become a producer of organic PV products. "The ultimate would be OLEDS and solar cells where you could have a skylight that would make power by day and then at night make light," he says. Another advanced organic PV development has been spray-on technology, where PV cells are incorporated into a liquid that could be applied to a building surface. While the lifespan is short, Joop Schnoonman, director of the Delft Centre for Sustainable Energy in the Netherlands, has developed an aerosol spray-on PV cell using a mix of copper indium sulfide and titanium dioxide that has led to a longer lifespan and an approximate 5 percent efficiency. "We are trying to make a cheap production technology with cheap materials," Schnoonman says, adding, "Any shape of surface could be sprayed." Solar industry researchers and manufacturers view the flexible application of PVs to buildings as key to achieving widespread use in architecture.

THE PV INDUSTRY'S BIGGEST CHALLENGE LIES IN PRODUCING PANELS ATTRACTIVE ENOUGH FOR ARCHITECTS.

Building-integrated photovoltaics take off

The limited product applications and the perception of PVs as an additional cost to a building, as well as the owner-driven demand that PVs have a "payback" associated with their installation, has led many so consultants to push toward building-integrated photovoltaics. "In a fi class building, the cost of the facade is significant, so the cost of putt photovoltaics on it versus granite or another material may actually less," says Andrew Wilkinson, with Arup's Newcastle office in England. adds that the photovoltaic industry's biggest challenge lies in produc panels and systems attractive enough for architects to want to incorpo them into their buildings. "The question we're asking now is, if yo given a free hand, what sort of module would you like," Wilkinson s

While traditional PV installations—rectangular modu mounted to secondary roof structures—continue in wide use, in the p few years, a rash of new options has hit the market to address the aesth issues of PV use. Photovoltaic shingles, meant to replace conventio asphalt or concrete roofing shingles, have wide application in the resid- tial market. Many manufacturers offer this type of product.

Kyocera Solar, a dominant Japanese company, has targeted California market, which practically all solar consultants and manufac- ers consider the third-largest market for PVs behind Japan and Germ mainly owing to state government incentives. Kyocera offers the My Meridian product, a polycrystalline silicon cell from Japan integrated in product that seamlessly ties into concrete shingle roofs. Jesse Henson, b at Kyocera's U.S. headquarters in Scottsdale, Arizona, said building-i grated PVs owe their cost-effectiveness in large part to their ability to advantage of existing labor on a job site. "We also need a more streaml utility connection protocol," Henson says. "Now, each utility or munici- ity is different, so very few PV installers operate on a national level."

Other companies, such as Uni-Solar, make PV shingles for u-

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BP Solar worked with Sheppard Robson architects in England on the University of East Anglia's Zuckerman Institute for Connective Environmental Research, which included a combination of single crystal and polycrystalline silicon cells laminated in glass to meet nearly a third of the building's electrical demand.

dential use. Uni-Solar also manufacturers a roll-on PV cell that can be incorporated into roofing membranes to be deployed onto large-scale warehouse and manufacturing facility roofs. Konarka makes a similar product based on different technology. Solarworld, which bought Shell Solar's silicon PV business, originally developed by Siemens, produces a conventional silicon PV module that is most typical of rooftop applications. Many companies, such as BP Solar and Kyocera, produce PVs laminated between sheets of glass. Atlantis Energy, which produces glass-laminated PVs in Sacramento, California, supplied the Wagner Park project discussed earlier. Joe Morrissey, of Atlantis, said he is hopeful UL will begin to certify whole lines of PV products, as opposed to the project-by-project basis now in place. While limitless options are available to an architect, Morrissey said he spends a great deal of time explaining photovoltaics. "I feel like we're educators too much," Morrissey says. "We're really trying to get beyond that so people can understand the process of actually incorporating them into their buildings."

"THE DANGER IS THAT PEOPLE WILL VIEW PVS AS A TECHNOLOGY FIX," SAYS ATELIER TEN'S NICO KIENZL.

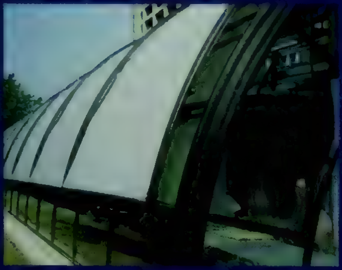
Advising nonresidential clients to invest in a large-scale PV installation should be part of an overall energy-efficiency design strategy, according to Nico Kienzl, a building energy consultant in Atelier Ten's New York office. "In most projects, it makes more sense to install an advanced lighting and control system, a better HVAC system, and a good building envelope, and then, if you have money to spare, you could install photovoltaics," Kienzl says. However, placing a PV installation in atri glass or on a canopy can signify a client's commitment to sustainabil which Kienzl says often rightly overrides decisions based purely on p back. "The danger is that people will view PVs as a technology fix, wh PVs alone are never going to get us there."

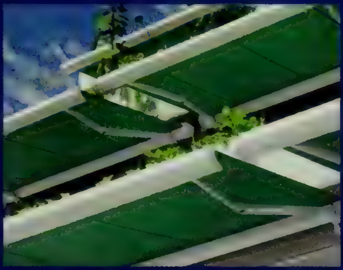
Kienzl begins a PV design proposal by creating a sun path d gram for the building. This diagram helps explain where it makes most sense to install PVs on a building by indicating shadows from nei boring structures and zones with the highest incidence of sunlight dur various times of the year. This information guides Kienzl in recomme ing building surfaces for PV use, as well as the most appropriate angle PVs if they are installed on canopies or awnings. Determining what s face to use on a building exterior can sometimes run aground of warra issues, since an awning supplier and installer may not certify the prod if a PV contractor has affixed modules to them. Kienzl says any PV ins lation is often, if not always, an intense collaborative effort between PV manufacturer and the design team, though this doesn't always nee occur during the initial construction of the building. "PVs are a g technology because the cells can always be added later," Kienzl says, ing that while only 5 percent of his projects contain PV installations, majority of his clients consider them for their buildings.

Economics of photovoltaics

Time and again, economic factors contribute to the decision fo against PVs. Kyocera's Henson says the way utilities price electricity t ignores the externalities, such as environmental damage, of its true c which keeps PVs from becoming competitive with conventional ene

DRESSING THE WINDOW IS AS IMPORTANT AS UNDRESSING IT.





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producing technologies. Nevertheless, Henson, like many in the PV industry, views this as a short-term problem in light of decreasing fossil-fuel supplies and increasing energy costs. The biggest market change, Henson says, occurred when governments created incentives for grid-connected PV installations, which helped shift the balance of demand for PVs away from their traditional market of off-grid applications for isolated buildings and infrastructure such as highway call boxes and signs.

Widespread government initiatives like those in Germany and Japan offering incentives for rooftop residential solar installations account for the key differences in the size of these markets compared with the U.S., and underscore the reason Japanese electronics firms dominate the PV cell production industry. PVs are now so standard in Japan, incentive programs have been phased out.

Ray Noble, with BP Solar in England, said government subsidies have helped spur development of rooftop and stand-alone installations, but haven't significantly encouraged building-integrated PVs. "This is turning into a real mass-production industry, though, so that will push down prices," Noble says, adding that he expects more oil companies to enter the business once PVs become directly competitive with nonrenewable energy sources. Noble also points out that since demand for silicon in the PV industry has eclipsed that of the semiconductor industry, which requires a higher grade of silicon, it's likely PV-grade silicon will go into production and further reduce costs.

Noble says many European countries, like Germany and Spain, have developed building-integrated photovoltaic incentive programs to lessen the aesthetic consequences of conventionally mounted rooftop and stand-alone systems. In cities such as London and elsewhere, he says, lac of space practically necessitates building integration of PVs.

The Bush administration has proposed the Solar America in tiative, which would infuse nearly $150 million (an increase of $6 million from last year's budget) into research and production program but its adoption as policy has not been assured. While NREL's Ginl thinks research funding levels fall short in the States, he sees small companies making huge strides thanks to a ready supply of investme capital. "In a sense, PV may very well be the next large area of techno ogy," Ginley says.

PHOTOVOLTAICS ARE NOW SO STANDARD IN JAPAN, INCENTIVE PROGRAMS HAVE BEEN PHASED OUT.

Gary Gerber, of Sun Light and Power in Berkeley, has be installing small residential rooftop PV modules since the 1970s, so h seen the industry rise and fall with the times. This year, Gerber sa they've had so much demand for their systems, which rely on PV ce from Mitsubishi, they can't always ensure the availability of produ Gerber, a board member of the California Solar Energy Indust Association, says the state's market has risen again thanks to t California Solar Initiative, a state-funded program that will pump $ billion in incentives for PV installations over the next 11 years. "In years, I really don't think we're going to need incentives," Gerber sa "People who don't use solar by then will be an oddity." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- Read the article "Selling the Light of Day" using the learning objectives provided.
- Complete the questions below, then fill in your answers (page 198).
- Fill out and submit the AIA/CES education reporting form (page 198) or download the form at www.archrecord.com to receive one AIA learning unit.

QUESTIONS

1. What type of photovoltaics did Wagner Park Edge use?
  a. single crystal silicon cells
  b. multicrystalline silicon cells
  c. thin-film glass-laminated PVs
  d. organic PV cells

2. Over 90 percent of the photovoltaic market consists of which?
  a. crystalline silicon cells
  b. thin-film silicon cells
  c. organic cells
  d. amorphous silicon cells

3. The benefit of using thin-film PV is all except which?
  a. they can be applied to more building materials
  b. the lower installation costs
  c. they are more flexible than crystal silicon cells
  d. the raw material is in abundant supply

4. The benefit of using organic PV cells is which?
  a. they are readily available for commercial applications
  b. the raw material is in abundant supply
  c. they are more efficient than silicon
  d. they have a long lifespan

5. The major drawback of organic PV cells is which?
  a. they cannot be sprayed onto building surfaces
  b. they degrade easily
  c. their theoretical efficiency is low
  d. they are expensive to produce

6. California is considered which market for photovoltaics?
  a. the largest
  b. the smallest
  c. the third largest
  d. the second largest

7. The use of photovoltaics is encouraged by which?
  a. tax credits
  b. energy rebates
  c. an energy-efficient design strategy
  d. all of the above

8. Which type of photovoltaic can be printed on fabric?
  a. single crystal silicon cells
  b. organic PV cells
  c. thin-film PV cells
  d. multicrystalline silicon cells

9. Government subsidies and incentives have promoted which type of installation?
  a. commercial units
  b. building-integrated PVs
  c. residential rooftop units
  d. utility installations

10. Photovoltaic installers do not operate on a national level for which reason?
  a. only California uses photovoltaics
  b. all installers are headquartered in Arizona
  c. the only certified installers come from Japan
  d. each utility or municipality is different

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Tech Briefs

California examines formaldehyde limits for panel products • Documentation of Word Heritage sites available digitally • American Institute of Architects tackles barriers to integrated practice

omposite wood industry watches developments in California

the coming months, California
egulators could approve strict limits
r formaldehyde emissions from
omposite wood products. The stan-
ards, if adopted, would have a
rofound impact on panel manufac-
rers, importers, and retailers that
o business within the state's bor-
ers and beyond.

The regulations, proposed by
e state's Air Resources Board
ARB), and released most recently
draft form in June, call for imple-
entation in two phases. By July
008, producers of particleboard,
edium-density fiberboard (MDF),
d hardwood plywood must reduce
nissions to levels that many U.S.
anufacturers are already achiev-
g. A more strict set of limits would
into effect in July 2010, when
oducers of particleboard and hard-
ood plywood would be required to
duce emissions to 0.08 parts per
illion and 0.03 ppm, respectively.
anufacturers of MDF would have
other two years to meet 0.08
m levels.

The regulation is primarily tar-
ted at urea-formaldehyde (UF)
sins, the most commonly used
nder in composite wood products.
e UF binders continue to cure
d off-gas throughout a product's
, explains Tom Lent, technical
licy coordinator of Healthy
ilding Network, a national net-
rk of green building professionals
d environmental advocates.

Formaldehyde has been
own to cause cancer in animals
d may cause cancer in humans,
cording to the U.S. Environmental
otection Agency. Other health
fects include eye, nose, and
roat irritation, fatigue, and skin
sh, says the agency. Industry
oups, like the Formaldehyde
uncil, counter that the chemical
naturally occurring and is even
oduced by the human body. The group maintains that emissions from products like plywood "are well below levels that could produce adverse health effects."

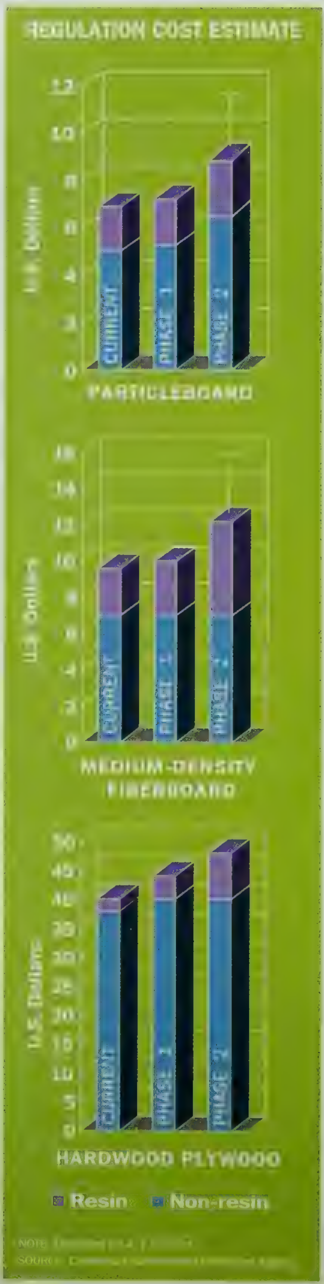
Pushing technology

Manufacturers are most concerned about the second-tier thresholds. "We can meet Phase I with current technology," says Darrel Keeling, particleboard manager of Roseburg Forest Products, but notes, "the Phase II reductions will force technology and have the potential to put quite a few people out of business."

Several manufacturers, including Roseburg, offer products that would comply with the proposed Phase II limits, in addition to their traditional UF panels. However, they typically market these boards for use in projects where indoor air quality is of particular concern, and sell them at a higher price because they use more expensive, but lower-emitting binders. "We cannot produce all of our [board] with these alternative resins. It is feasible only for small volumes," says Chris Leffel, vice president of marketing and sales for SierraPine, a composite-panel manufacturer that offers several fiberboard products with no added formaldehyde.

Manufacturers worry that the regulation will increase prices of composite wood products. They also point out that emissions levels of imported products will be hard to verify, giving foreign manufacturers an unfair advantage. Enforcement "is one of the biggest holes in the current draft," says Keeling. "It leaves the door wide open."

In response to manufacturers' concerns, CARB is working on a laboratory testing procedure and a chain-of-custody documentation system. "These tools will help compliant companies by weeding out those that break the law. Enforcement provides a level playing field," says Gennet Paauwe, a CARB spokeswoman. Refinement of these provisions is one reason that a final hearing on the measure was recently postponed from September to January 2007, she says.


REGULATION COST ESTIMATE

CARB admits that prices will increase for wood composite products if the measure is implemented. The cost of particleboard, for example, would go up by 30 percent, according to the agency's estimates. However, proponents of the regulation maintain that prices would eventually fall as the measure pushes research and new resins are developed.

At least one manufacturer is not waiting to see the outcome of the California regulations to develop cost-competitive alternatives to UF-based resins. Columbia Forest Products is almost complete with conversion of its seven North American hardwood plywood plants to a manufacturing process that employs a patented soy-based adhesive. The company says that although the switch involved a "multimillion dollar" capital investment, the adhesive is a cost-neutral alternative to UF resins and produces a stronger and more moisture-resistant product.

In addition to these reported performance advantages, the manufacturer also points to benefits to its employees. "If we could eliminate formaldehyde from our production line, why wouldn't we do it?" asks John McIsaac, Columbia public relations manager.

Obsolescence

Approval of the CARB regulations could make one of the credits in the U.S. Green Building Council's LEED rating system redundant in California, and perhaps across the country, as manufacturers push for uniform standards. Projects that use composite wood products with no added UF earn a point for indoor environmental quality under the LEED system. Says Lent optimistically, "Implementation of CARB's second-tier regulations could mean that we wouldn't need [that credit] anymore." *Joann Gonchar, AIA*

Open-access digital archive of international archaeological sites set to launch

Conservators, architects, academics, and armchair archaeologists will soon be able to access detailed digital documentation of some of the world's most famous cultural sites via the Web.

At press time, the nonprofit Kacyra Family Foundation (KFF) was slated to launch its CyArk 3D Heritage Archive in mid-August. The open-access www.cyark.org will initially include documentation of nine sites as diverse as the South Dakota gold rush town Deadwood; the ancient Khmer capital Angkor, in Cambodia; and Pompeii, in southern Italy. Foundation officials hope the archived material will be used for site management, restoration, and education.

The monuments, many of which have been designated World Heritage sites by the United Nations Educational Scientific and Cultural Organization, have been documented with a variety of techniques. The core technology is 3D laser scanning, which uses a tripod-mounted laser device to scan objects and produces a digital collection, or “cloud,” of points in three dimensions. This data can be reassembled to create other media, including detailed 3D models, dimensioned 2D drawings, and animations.

These images of the Ramesseum, in Luxo Egypt, are representa tive of the material i the CyArk archive.

The foundation assists site authorities and academic institutions with planning and financing; helps locate professional surveyors with scanning equipment, who often donate their services; and provides software and training, says Ben Kacyra, KFF director and founder of Cyra Technologies, which was acquired by Leica Geosystems in 2001. (Cyra's 3D scanning technology is used to document many of the archived sites.) “Finally,” he says, “we are a repository for the information.”

Although only a handful of sites will initially be featured, KFF plans to expand CyArk quickly, not necessarily limiting it to projects documented through the foundation's involvement o to those using Cyra's technology, says Kacyra. “Our ambition is to help in 3D scannin high-definition documentation, a archiving of the top 100 to 150 endangered heritage sites worldwide in the next five years.” *J.G.*

Report touts benefits of integrated design and tackles obstacles hindering adoption

The construction industry is in the midst of transformation, and architects run the risk of becoming irrelevant unless they adapt. This is the message of the American Institute of Architects' *Report on Integrated Practice.*

Released in June at the institute's annual convention, held this year in Los Angeles, the report is a collection of essays that explore the problems of fragmentation in the construction industry and the benefits that can be achieved from building information modeling (BIM). It is intended to provoke discussion of how business models, project delivery methods, and liability and reward structures must change to facilitate a more collaborative design and construction process.

The compilation helps architects understand why they cannot ignore the issues associated with the new technological tools. According to several contributors, the survival of the profession itself is at stake. In the introduction, Daniel Friedman, FAIA, a dean of the College of Architecture and Urban Planning at the University of Washington, warns: “If owners, constructors, and developers see a way to reduce costs dramatically by substituting software for expertise … they may very likely conclude that many traditional architectural services are unaffordable, if not in fact obsolete.”

The report deals not only with the consequences of failure to adapt. It also convincingly argues that a deeper collaboration among the architect, builder, subcontractors, and fabricators can help realize both process improvements and a superior product. An essay by a team from the Kansas City–based firm BNIM, makes the case for virtual design and construction as a tool for creating more sustainable buildings, an endeavor “which relies heavily on an integrated systems approach to drive energy and resource efficiencies.”

Each of the report's 10 chapters is contained on a single 34-by-44-inch sheet of paper that folds to 8½ by 11 inches for storage in a sheathlike box. Although the presentation is attractive and allows for the use of informative graphics, it is impractical. For example, it would be difficult to read the essays on an airplane. Later this fall, the report will be available as PDF documents on the institute's Web site, at www.aia.org, in what will hopefully be a more manageable format.

Quibbles with the presentation aside, the compilation does an excellent job of helping architect understand the business, cultura and educational issues surround integrated practice. It is not intended, however, as a primer t help architects incorporate BIM i their work. The report is an “awa ness piece,” rather than a practic how-to guide, says Norman Stro FAIA, a partner at Miller/Hull and chair of the AIA's Integrated Prac Discussion Group—the committ that assembled the report.

The group has other initiati under way that could eventually help firms adopt the new tools more readily, including a collabo tive effort with the Associated General Contractors of America and the Construction Users Roundtable to develop new sta dard contracts. *J.G.*

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Taiwan, R.O.C

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Timetable

First Stage Material Submission Deadline	December 5th, 2006
First Stage Judging Session	December 7th & 8th, 2006
First Stage Finalists Announced	December 8th, 2006
Second Stage Judging Session	March 22nd & 23rd, 2007
Final Winner Announced	March 23rd, 2007

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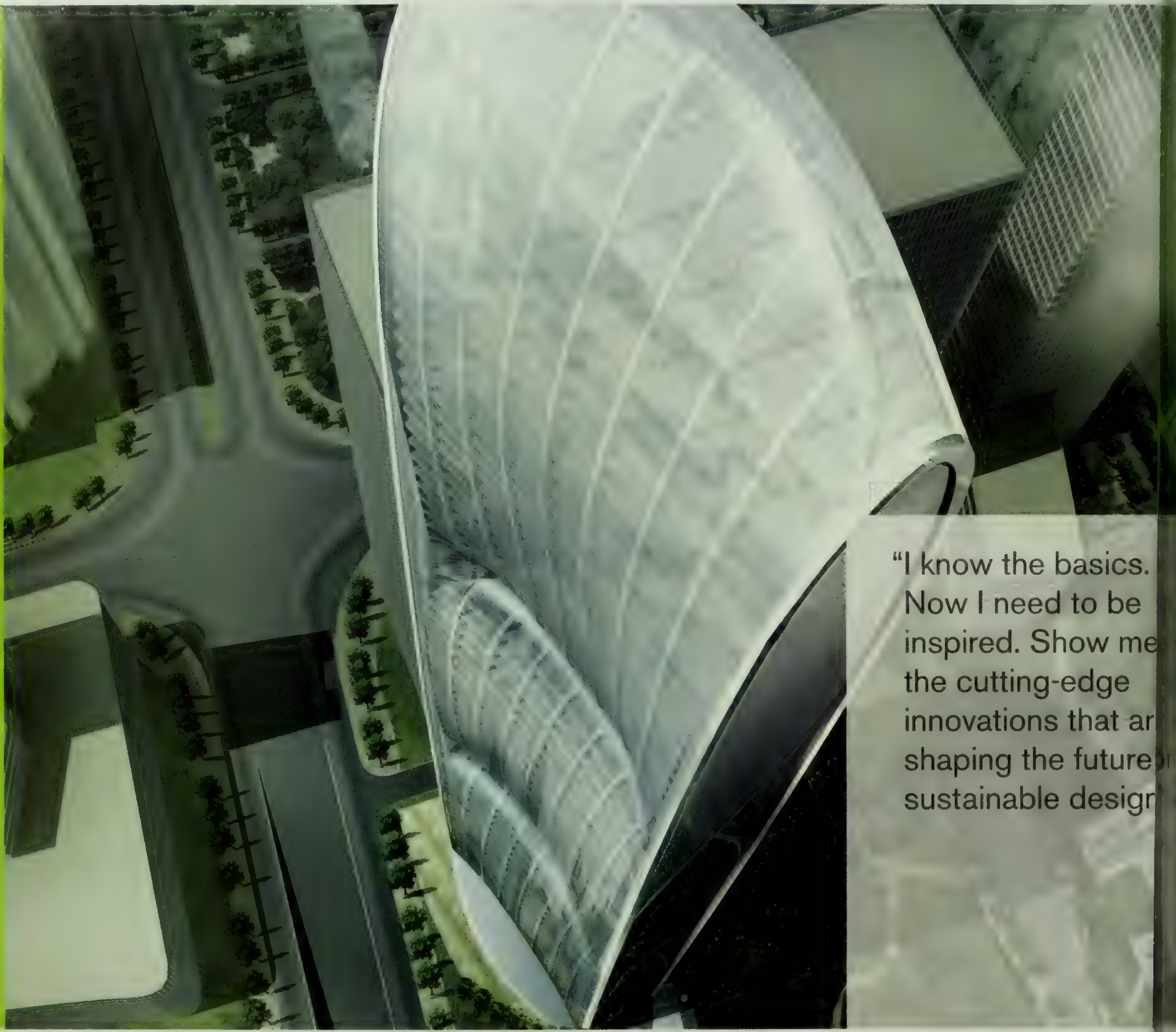connecting people_projects_products

"I know the basics.
Now I need to be
inspired. Show me
the cutting-edge
innovations that ar
shaping the future
sustainable desig

Skidmore Owings and Merrill's Pearl River Tower (above and right) will be built in Guangzhou, China. It's designed to produce more energy than it consumes, and is just one of the case-study buildings that will be presented at the conference.

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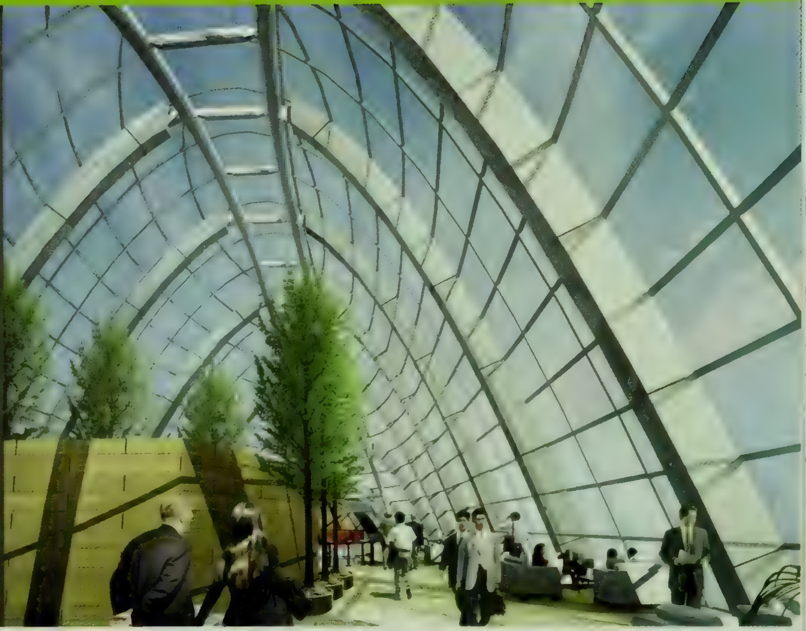

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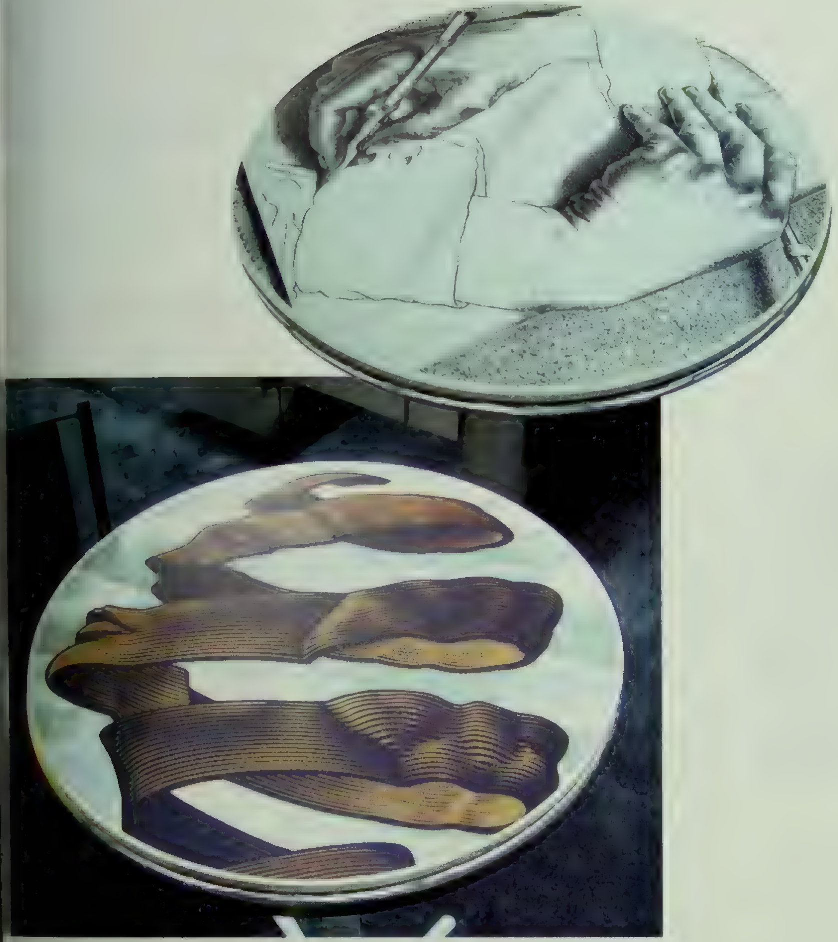
Products Materials

The **metal, wood, and plastic** materials featured this month are not radical introductions to the architectural market, but rather, dependable options enhanced in ways that make them more interesting to work with, from new uses for bamboo to **plastic roofing panels that save energy**. *Rita Catinella Orrell*



ye sublimation process "tattoos" solid surfacing

uPont Corian continues to push the oundaries of solid surfacing, and in turn, mains a vital supplier to the architec- ral and design community. The latest tent-pending technology developed for e material is Dye Sublimation in Corian, anufactured exclusively by R.D. Wing ompany of Kirkland, Washington. Dye ublimation is a new three-step heating ansfer and compression process that lows any image or graphic to be trans- rred onto Corian. The end result is an image that, like a tattoo on skin, actually becomes a part of the Corian surface. With the aid of computer software, special water-based inks and low-absorption paper are laid out on a sheet of Corian. A heating device is put in contact with the printed paper and Corian, both of which are heated on a vacuum table to ensure the inks vaporize and permeate into the Corian matrix. Upon cooling, Corian reverts to its nonporous state, permanently transferring the image, photograph, logo, or pattern onto the surface of the material. The printed Corian can then be repolished and thermoformed in the same way as unprinted Corian. Depending on the image provided, the image transfer can be produced as small as a coin or up to 30" x 40" without seaming or panelizing. A rapid cycle time allows fast turnaround for proofing, sampling, and the production of signs, logos, tiles, and other design elements. R.D. Wing Company, Kirkland, Wash. www.blimages.com **CIRCLE 201**

Examples of Dye Sublimation applications include decorative Corian tabletops with prints of M.C. Escher's famous works *Drawing Hands* (top left) and *Rind* (below left). A colorful Pop Art graphic (above) showcases how the process can be used to create an attention-grabbing feature wall.

◂ Safety mesh system

For the atrium of the 300,000-square-foot Kendall Square Biotech Laboratory in Cambridge, Massachusetts, a Cambridge Architectural Security & Safety mesh system was specified to provide fall protection using panels of metal fabric within railings. The metal fabric was used in combination with wood for lateral stability. The lab's interior materials intentionally mimic those specified on the exterior. Cambridge Architectural, Cambridge, Md. www.cambridgearchitectural.com **CIRCLE 202**

▴ ▸ Better behaving beams

iLevel Trus Joist Commercial, formerly Trus Joist, has introduced a new family of commercial framing products to the market. The TimberStrand LSL beam (above) allows for the drilling of multiple holes and has capacity for larger holes up to 4⅝". Parallam PSL beams and columns (right) reach up to 60' long. Thick section beams and headers eliminate field assembly and allow connections using common hardware. iLevel Trus Joist Commercial, Federal Way, Wash. www.iLevel.com **CIRCLE 2**

▾ Latest resin competitor

The inaugural line of Veritas ResinArt Panels offers limitless colors, textures, and encapsulated interlayers in 4' x 8' or 4' x 10' panels with gauges from 1/16" to ½". Design-directed by Shaw-Jelveh Design, the Veritas line lets each designer customize their own panel. More than 30 solid colors provide classic, tinted neutrals, and current and forecasted shades that permit varying degrees of opacity and translucency. The panels offer superior impact and chemical resistance and are available in a special UV-inhibitor blend for exterior applications. Robin Reigi, New York City. www.veritasideas.com **CIRCLE 204**

▸ One beautiful ending

New from San Francisco–based Smith & Fong Company, Plyboo End Grain Block (right) is available in 3' x 6' slabs and is ideal for tabletops, kitchen butcher-block, and other horizontal surfacing applications. The Plyboo EndGrain Block material is 1½" thick and is available in natural or amber, or in custom color stains. According to the manufacturer, the bamboo product will soon be available in flooring. Smith & Fong offers a range of sustainable materials, including Strand and Neopolitan bamboo and Durapalm, made from plantation grown coconut palms. Robin Reigi, New York City. www.robin-reigi.com **CIRCLE 205**

▾ Growing tulips and extra energy

In the Netherlands, greenhouses are among the largest consumers of fossil fuel. By constructing an experimental widespan greenhouse with GE's Lexan ZigZag sheet double-wall polycarbonate roofing panel, the Hydro Huismann horticulture company intends to produce more energy than it will use. Lexan ZigZag offers higher light transmission than single pane glass and insulation similar to multiwall glass or polycarbonate sheet. These energy-efficient properties will enable approximately a third of the heat generated in the greenhouse to be sold as surplus. GE Plastics, Pittsfield, Mass. www.geplastics.com **CIRCLE 206**

▴ Handy bamboo

Bamboo continues to work its way into more building product categories: In additi to its ability to be sustainably harvested every three to five years, its durability makes it a good replacement for hardwoods in interior finishes and flooring. InPro's bamboo handrail and chair-rail products, an extension of the company's EnviroGT li are available in both a lighter natural bamboo color and a rich brown hue created through a "carbonizing" process. Materials can be ordered in 13' stock lengths or preassembled units. InPro Corporation, Muskego, Wis. www.inprocorp.com **CIRCLE 2**

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Product Briefs

▸ Modular shelf system

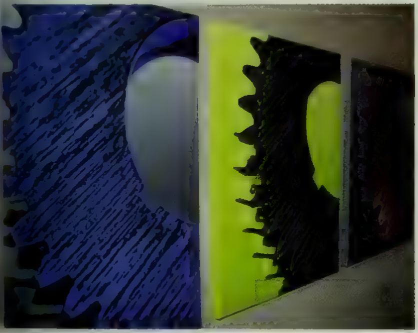
he as4 Modular Shelving System is a omponent-based shelving and furniture ystem handcrafted of solid wood and old-rolled steel bar. Featuring a wide nd growing range of components, such s drawers, desktops, and cabinets, ıe system can be configured as bookhelves or for home-office, A/V center, or etail-display applications. A Web-based ompanion design tool helps customers nvision a configuration by dragging nd dropping virtual components into osition. Atlas Industries, Brooklyn, N.Y. ww.atlaseast.com **CIRCLE 208**

► Wood grid controls light

Okawood insulating glass offers a new way to integrate the warmth of wood into curtain-wall glass. The system is composed of two panes of glass, with a wood grid placed between the panes that provides solar protection yet still allows daylight to enter. The type and width of wood, as well as the intervals within the grid, can be customized. The Solar Heat Gain Coefficient for Okawood using standard dark red meranti wood is 11 to 28 percent (depending on the angle of incidence), and light transmission is estimated to be approximately 14 percent. Schott N.A., Elmsford, N.Y. www.us.schott.com **CIRCLE 209**

Artwork geared for an urban loft

ɔr the Fahrenheit Lofts project in San Diego, Décor on Walls collaborated with the ›chitects to design several art pieces depicting a repetitive concept in different colors ıd shades. Inspired by the look of contemporary urban loft living, where mechanicals ıd concrete are exposed, an industrial gear was chosen as the main motif. For each one of the floors and the hallways of the common areas of the building, a different layout and color scheme was used. The art was produced on 100 percent cotton fine art canvas in a gallery wrap effect. Décor on Walls, Hollywood, Fla. www.decoronwalls.com **CIRCLE 210**



◄ Fabric as a sketch pad

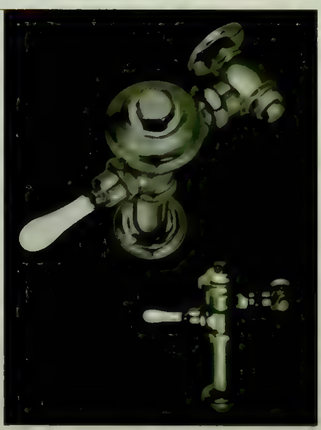
Michael Graves, FAIA, has designed his first contract textile collection inspired by studies from his visit to Rome as a student in the 1960s. Made with Crypton fabric and distributed exclusively through CF Stinson, the collection includes nine jacquard patterns available in 95 colorways. "In this collection for Crypton, I recall in a subliminal way the magnificent and picturesque landscapes of Tuscany and Umbria through expressive pattern and color," says Graves. Crypton's stain, odor, and microbial resistance permanently encapsulates each fiber, enabling stains and spills to be easily cleaned. CF Stinson, Rochester Hills, Mich. www.cfstinson.com **CIRCLE 211**

Laminate with a tropical flavor

ɔacá, a new line of decorative laminate surfaces from Lamin-Art, is manufactured using cycled banana fibers and kraft paper and contains approximately 40 percent postdustrial recovered content. Named for a species of banana harvested primarily for its er used in the production of rope and twine, Abacá recycles residues from banana ırvesting into an organic-looking, high-pressure decorative laminate. The fibers are rinkled over an array of ıckground colors to yield andom, nondirectional esign and texture. iitable for both horizontal ıd vertical applications, e line comes in 10 natu- hues in 4' x 10' sheets, d a standard thickness .048". Lamin-Art, haumburg, Ill. www. ninart.com **CIRCLE 212**

► A century-old classic

To commemorate one century in business in 2006, Sloan Valve Company has added the new Royal Classic to its manual Flushometer product line. The model is a replica of the flush valve that Sloan's founder W.E. Sloan introduced in 1906, and features the original Royal's bell-like top and white porcelain handle. The model features the dual-filtered fixed bypass diaphragm, which keeps debris from clogging the Flushometer and prevents valve run-on; the nonhold open handle that automatically shuts off regardless of the handle position; a nonadjustable, water-conserving design; and the Bak-Chek control stop. It is available in brushed-nickel, polished-nickel, polished-brass, chrome-plate, and gold-plate finishes. Sloan Valve Company, Franklin Park, Ill. www.sloanvalve.com **CIRCLE 213**



Product Briefs

◄ Fatal concoction

Walla Walla Environmental has introduced Bug-Juice Insecticide Paint Additive, the only insecticide paint registered by the EPA for both exterior and interior usage, according to the manufacturer. When mixed with water-based latex paint, oil-based paint, stains, or sealers, Bug-Juice-treated paint kills cockroaches, mosquitoes, ants, silverfish, and flying insects. Recommended uses include crack and crevice treatment on walls, floors, ceilings, floor drains, and trash chutes in apartment buildings, private homes, and in commercial applications. Walla Walla Environmental, Walla Walla, Wash. www.wwenvironmental.com **CIRCLE 214**

◄ Luxury commercial kitchen

Bulthaup has established a commercial division catering to multiple-unit residential real estate developers. Each project is prepared on a custom basis using the same product as would be used by any residential customer; there is no "contractor-grade" line. As of spring 2006, bulthaup had either installed or was slated soon to install more than 1,000 commercial kitchens in the U.S., including units for the Drill Hall project (left) located in Highland Park, Illinois, b Chicago-based architects Robyn Morgenstern Rosenblatt and Jennifer Morgenstern bulthaup, Roseland, N.J. www.bulthaup.com **CIRCLE 215**

► Custom wood flooring

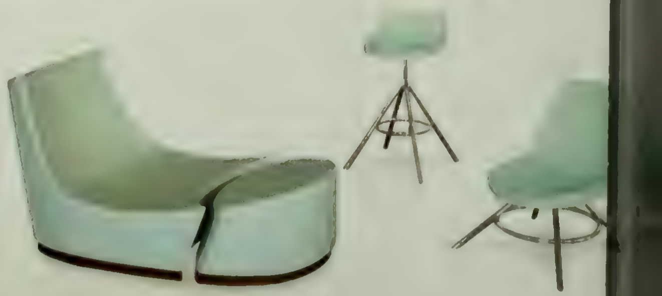
Founded in 2005, T. Morton Custom Wood Flooring lets specifiers choose the species, length and width, finish techniques, and special surface treatments for a range of freshly milled or antique/reclaimed solid or engineered wood flooring. Domestic offerings include steamed birch, Canadian maple, walnut, and cherry, while imported woods include afrormosia (Central and West Africa's version of teak), sapele (also known as African mahogany), and knotty Caribbean pine. T. Morton Custom Wood Flooring, Kenosha, Wis. www.tmorton.com **CIRCLE 216**

▲ The wall as your flipchart

PolyVision introduced the Thunder Virtual Flipchart System at this year's NeoCon show in Chicago. Changing the definition of what a flipchart is, the system is a series of large-format displays whose content can be simultaneously shared over any network with other similarly equipped rooms, as well as among participants on personal computers. A group easel allows input and sharing of any media image, and multiple pages are then "posted" or projected onto the wall in high resolution, allowing all of the information to remain visible to all participants throughout the meeting. Each page created in the meeting is saved on the system and can be displayed, edited, retrieved, printed, or e-mailed. PolyVision, Suwanee, Ga. www.polyvision.com **CIRCLE 218**

▼► Architect-designed lines

Appoggi, a new contender in the contract furnishings market, has introduced a series of affordably priced chairs, bar stools, ottomans, and tables designed by five renowned architectural and design firms. Michael Graves, FAIA, contributes two collections, Joinery and Dorsey, which reflect his traditional design aesthetic. Gluckman Mayner Architects offers the Minimalist Gemini Collection, while Arquitectonica's Nido Collection (bottom) includes soft curves and a retro-Modern design. The Rockwell Group's Uni-Form Collection (below) is made of molded plywood and will include an upholstered version in green leather. Finally, SHoP Architects' Slice Collection is the smallest group, with three pieces: a club chair (above), dining chair, and bar stool. Appoggi, Bedford, Mass. www.appoggi.com **CIRCLE 217**



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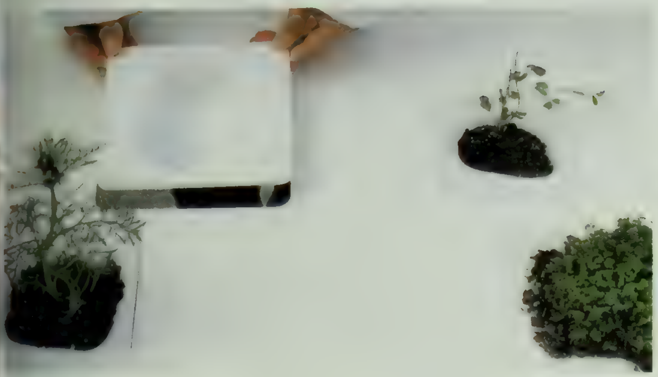
Product Briefs

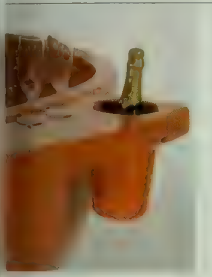
ICFF

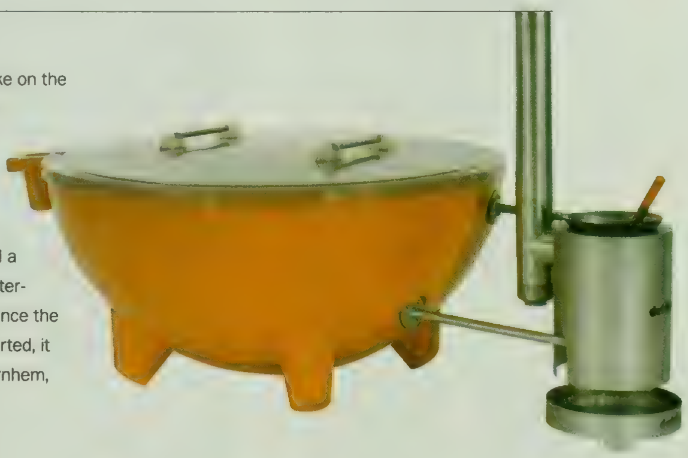
At this year's ICFF, quirky new products and reissued classics stood out. Featured here are a few examples of products that reimagine basic types of furniture, lighting, wall coverings, and even hot tubs. *Diana Lind*



◄ Customizable cutouts

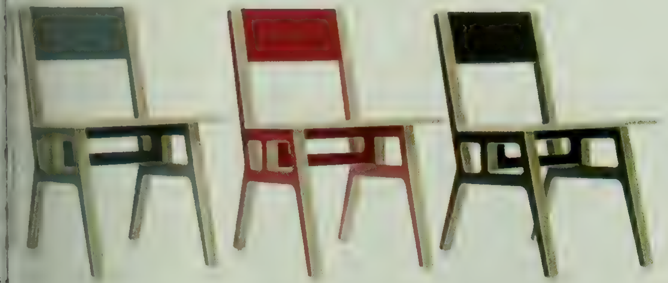
Nondesigns is a Pasadena-based design firm that covers everything from architecture to furniture to graphic design. It is apropos then that Topo, its table made of Corian, styrene, and steel, is correspondingly multifunctional. By letting customers choose where to place CNC-milled cutouts and mounds, the possibilities for organizing the topography of the table are endless. Topo's inserts form a miniature landscape on the table's surface and can be used for anything from stashing away office supplies to planting herbs, or they can be removed to provide space for computer cords. Also on display from Nondesigns was the Wet lamp, comprising an unusual series of glass lamps with a water-submerged light bulb at its center. When a silver rod is slid into the water, the lamp turns on and becomes brighter as the rod is submerged. Nondesigns, Pasadena, Calif. www.nondesigns.com **CIRCLE 219**





▼► Portable hot tub

Designed by Floris Schoonderbeek, Dutchtub is a new take on the centuries-old European bathing culture. While maintaining the cultural importance of a communal soak, the signature orange-colored tub distinguishes itself by focusing on modern priorities: It is transportable, lightweight, and not dependent on electricity. The tub turns bathing into an event—a side table with a built-in ice-bucket (left) and a wok for cooking meals (right, on burner) allow for easy enter- ining, while additional options include trailers for moving the tub from place to place. Once the olyester bath is filled with water and its wood-fired stainless-steel heating system is started, it ikes 2 hours to heat 200 gallons of cold water to 100 degrees Fahrenheit. Dutchtub, Arnhem, ie Netherlands. www.dutchtub.com **CIRCLE 220**

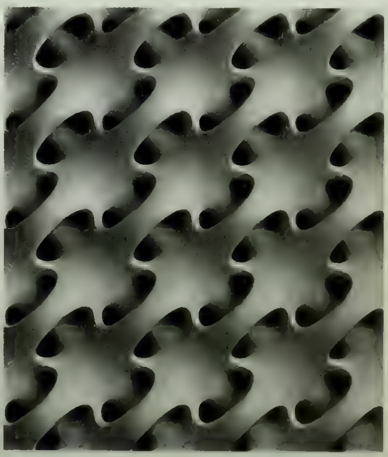


▲ Truss-inspired furniture collection

Truss, a 10-piece collection from Context Furniture that includes chairs, tables, benches, and casegoods, riffs on the basic architectural element of the truss. Made of Baltic birch plywood, the pieces could fit in anywhere from a residence to a library to a school. Appropriate for such a streamlined collection, the furniture comes in colors such as red, white, espresso, and moss gray with a choice of laminate or wood veneer. While the library desk and occasional table affect a retro look with their simple forms, the pieces are all CNC-milled and flat-packed, thus appearing contemporary, not nostalgic. Context Furniture, Royal Oak, Mich. www.contextfurniture.com **CIRCLE 221**

▼ Screen scene

Erwin Hauer's renowned series of mid-20th-century screens that feature repeating abstract shapes have long been admired by the design community but were often too expensive to replicate for individual projects. Now, Hauer and his three partners, who form Erwin Hauer Studios, are using modern digital technology and production methods to reissue select designs from the Continua series of screens. Three of Hauer's classic designs along with one new design are available in custom configurations and sizes. The company has most recently been commissioned to create a 25' indoor/outdoor bas-relief wall for a Manhattan residential high-rise. Erwin Hauer Studios, New Haven, Conn. www.erwinhauerstudios.com **CIRCLE 222**



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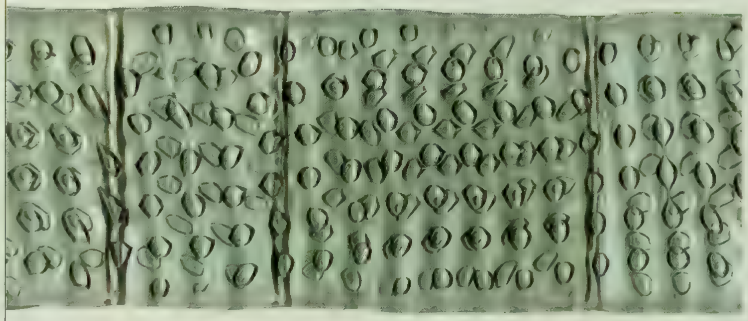
Product Briefs ICFF

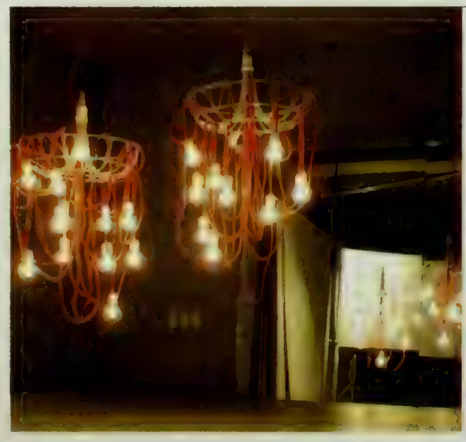
► Embossed wall panels

Inhabit Living, founded by husband-and-wife team Jennifer and Mike Tuttle, debuted the Wall Flats wall-covering collection at this year's ICFF. Wall Flats embossed panels are made of recyclable molded paper pulp and add texture to vertical surfaces. The prefabricated panels come in 18" x 8" rectangles with adhesive strips on the back. They are available in packs of 10 panels in three streamlined patterns—Shangri-La, Bud, and Seesaw (right)—that recall the forms of modern tiles. While Wall Flats are currently produced only in off-white, they can be painted other hues. Inhabit, Indianapolis. www.inhabitliving.com **CIRCLE 223**



▲ Glass of bubbly

Bubble Glass, created by the Los Angeles design duo PadLab, takes its name from the process of controlling the placement of air bubbles in glass to embed patterns, images, and text. PadLab takes a client's desired image—a thing from a pattern to a drawing—and incises it into sheets of glass that are then kiln-fused into a uniform pane As a result, air bubbles are trapped precisely in place. PadLab collaborates with clients and architects to form the customized sheets, which may be used for architectural installations, lighting, and fine art. PadLab, Los Angeles. www.padlab.com **CIRCLE 224**



◄ Industrial chic

Like many of the lighting options debuted by small companies at ICFF, Zinoo Park's Spaghetti Chande combines whimsy with irony. This piece turns the prim chandelier on its head: In an intentionally slo assembly, the ubiquitous orange electrical cords o associated with industrial applications form the bo of a chandelier. Hung from the cords are standard light bulbs—11 in the small version of the chande and 21 in the large—that can be arranged as the installer wishes. The chandelier's small and large sizes feature diameters of roughly 31½" and 40", respectively. Zinoo Park, Seoul. www.zinoopark.co **CIRCLE 225**

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Palms *The Jerde Partnership* Photo courtesy of BASF Wall Systems (Senergy)

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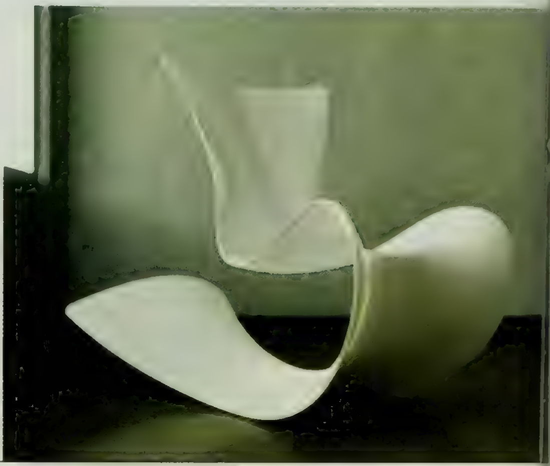
Product Briefs

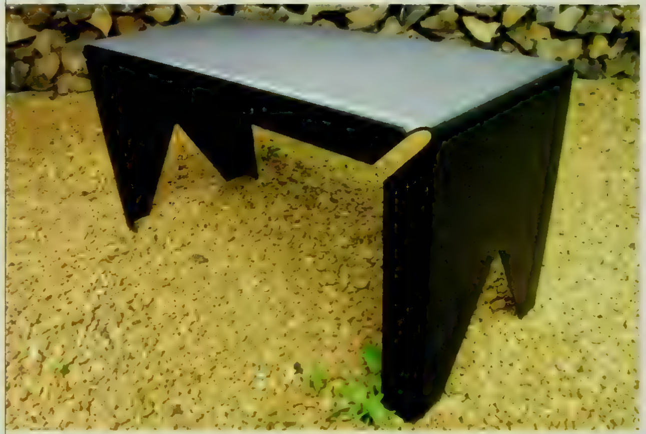
SIDIM

Last May, Montreal's interior design show, SIDIM, displayed a range of local and international talent. *Josephine Minutillo*

► Rock on

Recipient of the Best of Canada Award earlier in the year at the Toronto Interior Design Show, the Mamma rocking chair was still causing a stir at SIDIM. Created by young, Montreal-based designer Patrick Messier in anticipation of the birth of his child, the undulating chair is made from a single piece of fiberglass finished with a special high-gloss urethane. The design for the exaggerated curves was developed from a mathematical grid. Éditorial, Montreal. www.editorialliving.com **CIRCLE 226**

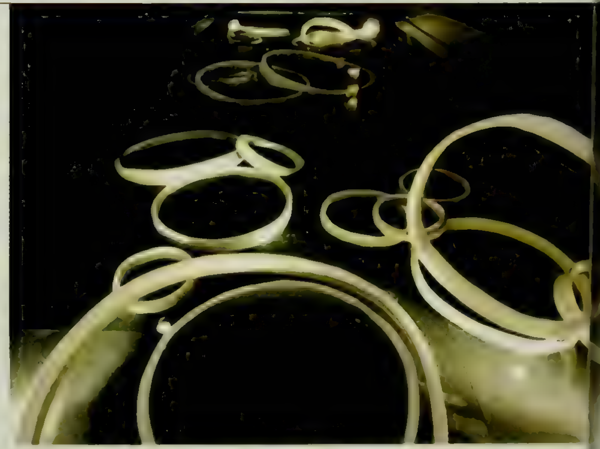




◄ Folk story

A pair of young Québécois
designers, Frédéric Galliot an
Vincent Hauspy, together form
Erratum designers, whose cle
and varied collection drew rav
at SIDIM. Their Folk bench is
fresh take on the traditional
wood bench. Made from a sin
sheet of steel, the powder-coated bench can be used
indoors or out. Folk measure
15" high x 30" long x 12" wid
Erratum Designers, Montreal
www.erratum.ca **CIRCLE 227**

► Clay station



A native of Quebec, renowned ceramicist Pascale Girardin's presentations at SIDIM are always a highlight. Her aquatic installation at this year's show was representative of some of her most recent work. A frequent collaborator with architectural firms, including fellow Canadians Yabu Pushelberg, Girardin created more than 80 installations for luxury hotels and restaurants in North America and abroad in the past year alone. Pascale Girardin, Montreal. www.pascalegirardin.com **CIRCLE 228**

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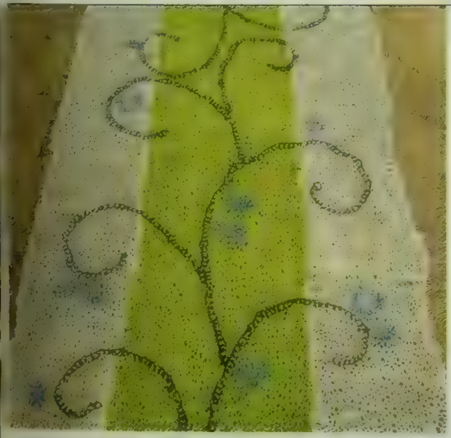
◄ Oblique reference

Young Montreal native Catherine Braconnier already had years of experience working in the ceramic tile industry when she convinced Italian manufacturer Dom Ceramiche to produce one of her own designs. Oblik is a porcelain tile whose sharp, unconventional shape was inspired by a mural Braconnier observed during her travels. Oblik is available in a range of sizes and is distributed in Canada through the Ciot network of retail stores. Ciot Habitat, Montreal. www.ciot.com **CIRCLE 229**

Sink down

mpas Intérieurs, a local showroom featuring work by interna-
nal designers, showed off highlights from its impressive
llections. Among them were pieces by renowned Filipino
signer Kenneth Cobonpue. Chiquita is a striking stool with an
usual combination of materials. Natural rattan poles sit atop a
lyurethane cushion inside a molded steel base. The poles sink
ftly when sat on. "It looks uncomfortable, but the bed of foam
derneath holds a surprise for everyone," says Cobonpue. Why
e name Chiquita? "Bunches of bananas, rattan poles, and fiery
d Latina girls come to mind." Available in red, silver, and black,
e stool is 18" high and 17¾" in diameter. Tampas Intérieurs,
ontreal. www.tampas.com **CIRCLE 230**



◄ Women's work

This year, SIDIM featured a special section devoted to African design. Among the showcased designers was Gone Rural, a cooperative based in the Kingdom of Swaziland that is committed to empowering rural Swazi women by providing a regular income for them. The women use traditional hand-weaving skills to produce a range of colorful tableware, including place mats, coasters, and centerpieces, as well as wall hangings and rugs. All are made using local and sustainable materials, including hand-dyed grass (left). Gone Rural, Malkerns, Kingdom of Swaziland. www.goneruralswazi.com **CIRCLE 231**

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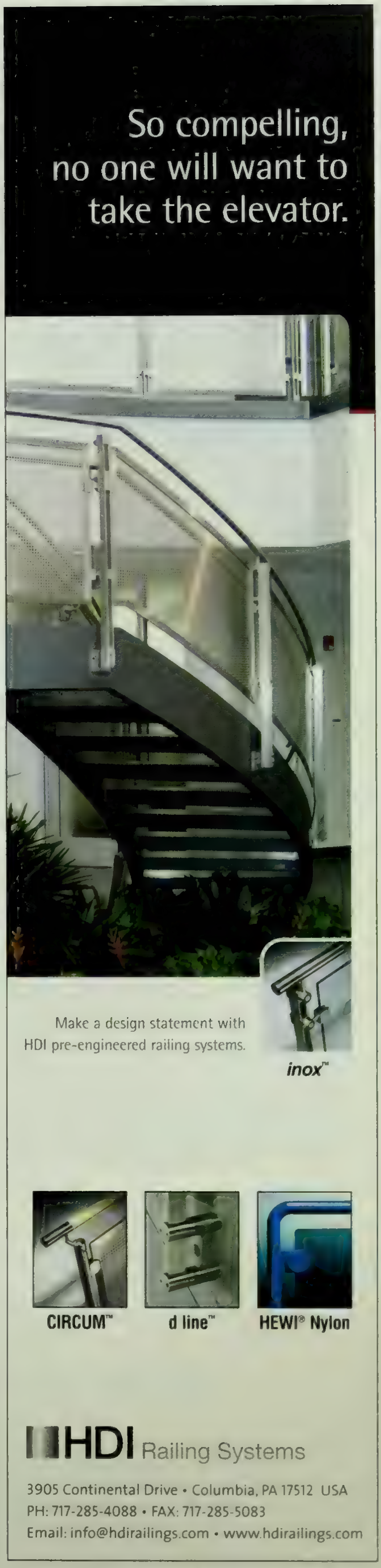

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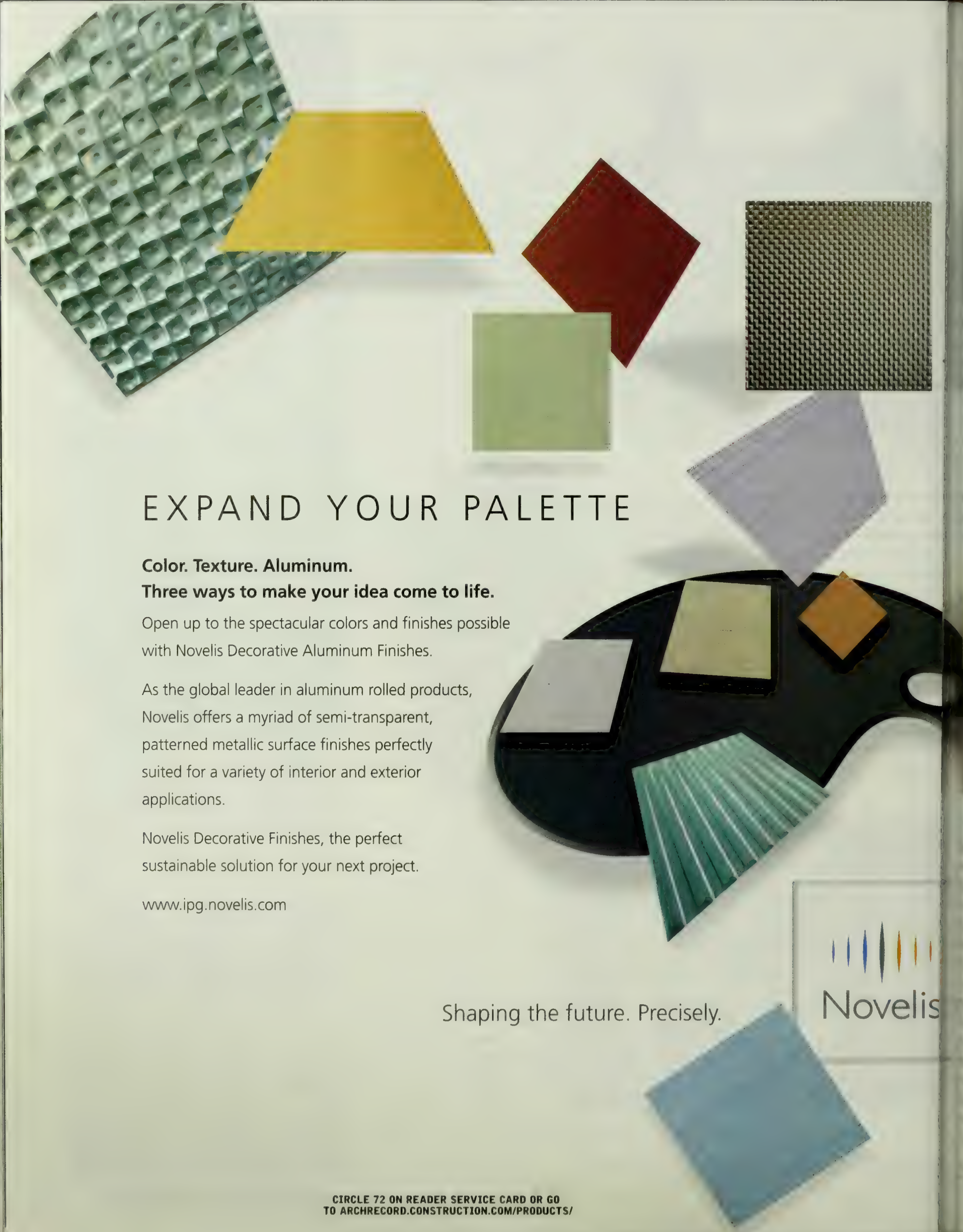

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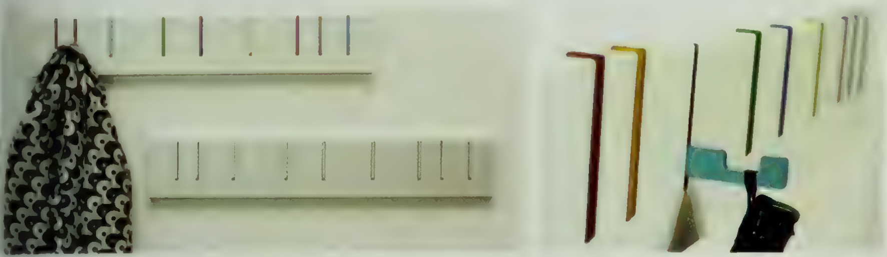
Product Briefs

Brooklyn Designs

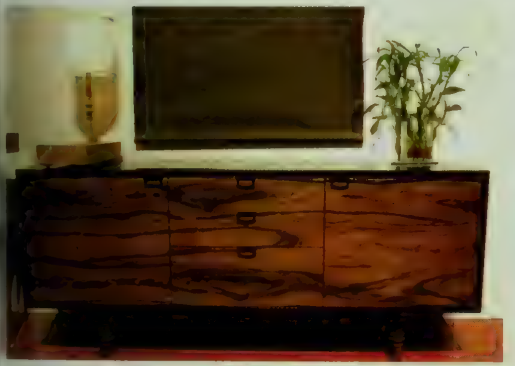
The fourth annual Brooklyn Designs fair was held last May in the borough's DUMBO neighborhood. *D.L.*



Get hooked

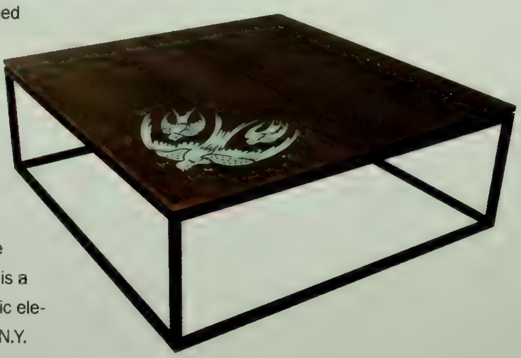
esu Design, a company originally based in Los Angeles but now located in Williamsburg, Brooklyn, introduced seven ew products at Brooklyn Designs. Minimalist and mainly manufactured in neutral colors, the products often walked ne line between art and furniture. One standout from this year's collection was Symbol, a coatrack. Symbol is the esult of Desu Design's quest to improve the prevailing aesthetic of ordinary coat hooks. When a coat needs to be ung, Symbol's hooks slide out; when not needed, the hooks lay flat on the sleek base. Made of anodized aluminum, ne piece is available in monochrome or customized colors. Desu Design, Brooklyn, N.Y. www.desudesign.com IRCLE 232

Materials make a comeback



nvironmentally friendly products, made of recycled materials that reflect a modern, urban aesthetic, stole the how. Palo Samko is a woodworker whose three-year-old company debuted two lines of ecofriendly furniture this year. His Walnut Line is composed of chairs, cabinets, and tables made of walnut wood. These forms allude to the sleek lines of mid-20th-century furniture but have a softer, less-industrial look to them. His Recycled Line is made from scraps found on construction sites. Using plywood, old construction beams, and railway beams, Samko renders these unsophisticated materials as polished desks, benches, and lamps that ironically convey both urban grit and refinement. Palo Samko Woodworker, Brooklyn, N.Y. www.palosamko.com **CIRCLE 233**

Chirpy table



ke many of the exhibitors at Brooklyn Designs, Uhuru Design stresses s commitment to the environment in its products. Most of the pieces in s BK Collection are made with recycled or reclaimed aterials, ranging from hardwood scraps used r a coatrack to a medical IV stand reconfigred for a lamp. The 48"-square Bird Table ight) exemplifies Uhuru's funky aesthetic. The offee table's steel frame is blackened with a atina and sealed with a wax finish, while the p comes in either walnut or cerused white oak. A reveal between the base and the top causes the p to appear to float. Screen-printed on the wood is a rd graphic (here, in robin's-egg blue). Other graphic elements are also available. Uhuru Design, Brooklyn, N.Y. ww.uhurudesign.com **CIRCLE 234**

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FOREWORD BY SARAH SUSANKA

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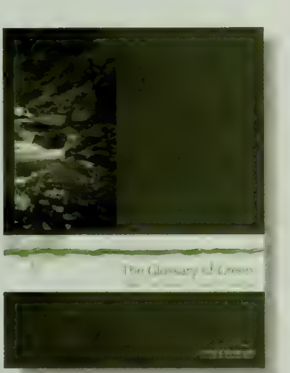


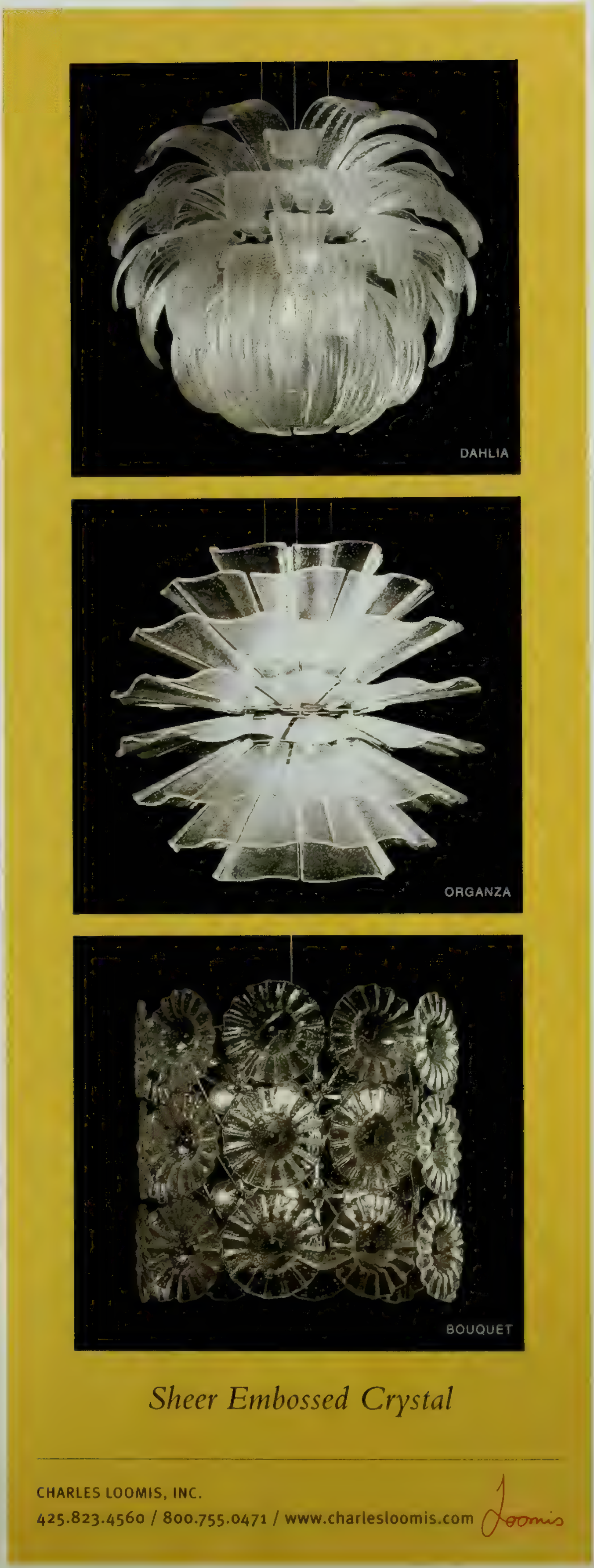
ireen lingo glossary

ıPro has published a newly revised *Glossary f Green* booklet that covers 100 of ıe most common terms, phrases, and efinitions used in sustainable design and onstruction. InPro's sustainable offerings ıclude the EnviroGT line of handrails, wall uards, and corner guards made of 100 ercent recycled high-density polyethylene nd FSC-certified wood. The company also perates a Vinyl Recycling Program. InPro, luskego, Wis. www.inprocorp.com **CIRCLE 237**

Recycling program brochure

Armstrong is offering an eight-page brochure describing its ceiling recycling program that enables building owners to ship old acoustical ceiling tiles from renovation projects to an Armstrong ceiling plant rather than sending them to a landfill. The brochure also includes a listing of the different categories in which Armstrong ceilings can contribute to LEED credits. Armstrong World Industries, Lancaster, Pa. www.armstrong.com/environmental **CIRCLE 238**

r more information, circle item numbers on Reader Service Card or go to ww.archrecord.com, under Products, then Reader Service.



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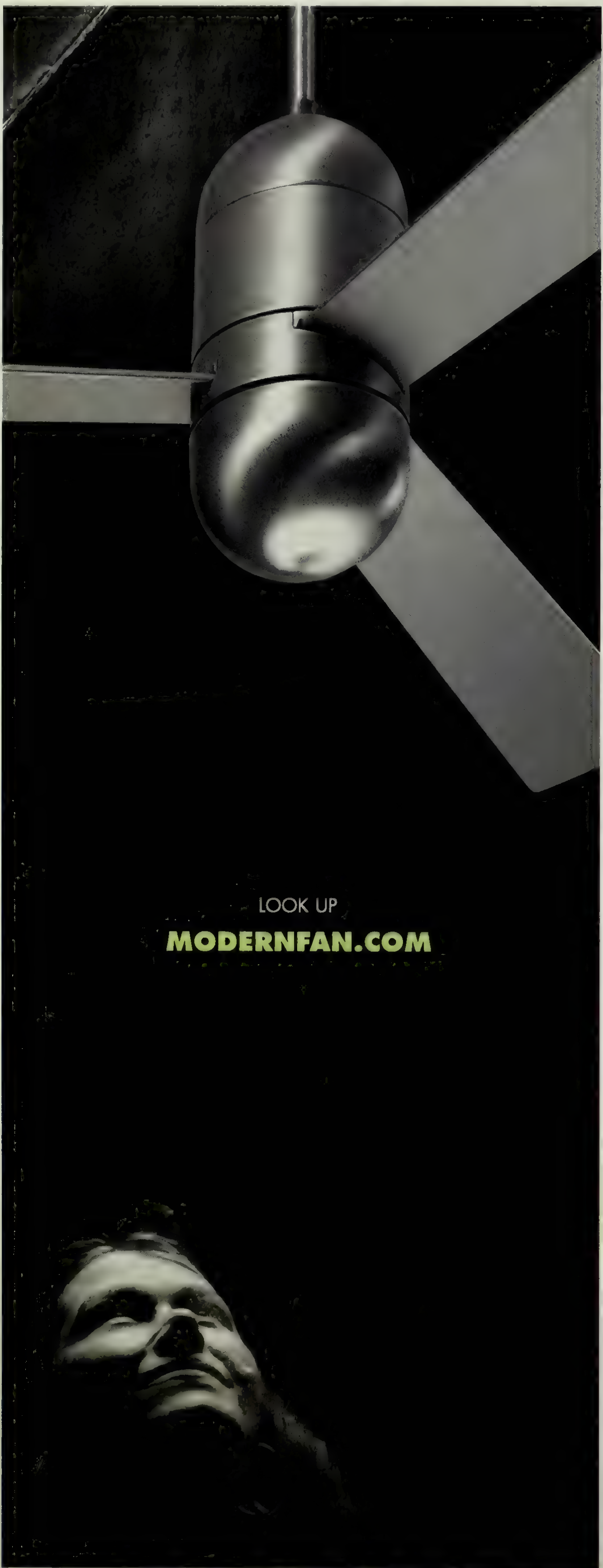

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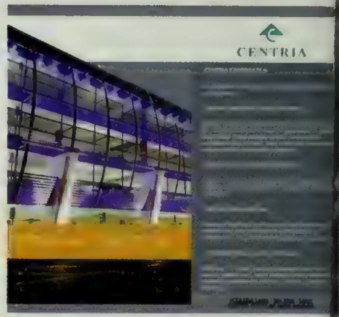
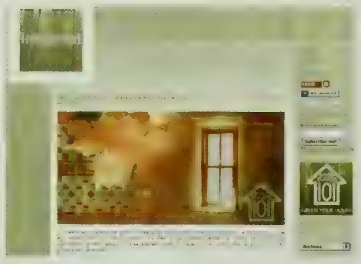
Product Resource: On the Web

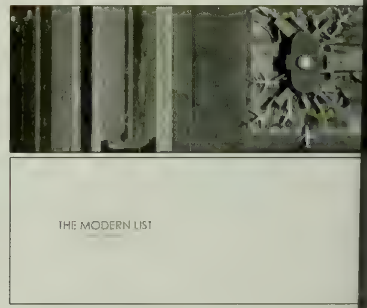
www.centria.com
Centria has launched a new Web site with improved user navigation, upgraded search tools, and additional content, including the new Centria Institute. The site could offer more animation and interaction and suffers from an "online brochure" feeling, but it does provide clear and complete product information, project photos, technical details, and load-span tables.





www.inhabitat.com
This design blog, started by a graduate architecture student, focuses o objects and spaces that are "eco-friendly, multipurpose, modular, and interactive." Recent product entries include the flat-packed Zebra Chai designed by Dieter Paul, and light-sensitive wallpaper by Front Desig

www.themodernlist.com
Intended to be a Modernist guide to Manhattan and Seattle, this site covers showrooms, museums, bars, restaurants, and other hot spots. The map is not interactive, the list is incomplete, and a small font size makes it hard to read, but the site is a good idea and has much potential.



www.designbeans.c
Available in English, Italian, a Spanish, this blog, designed edited by Milanese industria designer Gimena Gomez Pa is perfect for the internation product-design junky. Paz's entries seem to be less frequ yet more in-depth and read than typical design blog ent Archives go back to July 20

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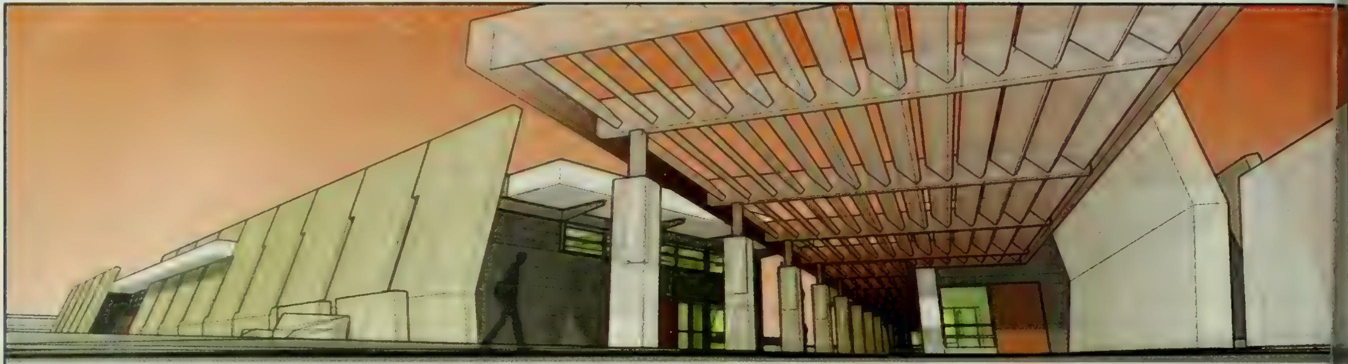

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Dates & Events

lew and Upcoming xhibitions

lural Studio: Education of he Citizen Architect
uburn, Ala.
eptember 5–November 5, 2006

n exhibition of the Rural Studio, an internationlly acclaimed program of architectural education ithin Auburn University's School of Architecture, hich has educated over 450 citizen architects the classroom of Hale County, Alabama. At he Jule Collins Smith Museum of Art, Auburn niversity. Call 334/844-1484 or visit ww.auburn.edu.

0th International Architecture xhibition of the Venice Biennale
enice
eptember 10–November 19, 2006

its 10th year, this international exhibition is rected by Richard Burdett and dedicated to ties, architecture, and society. Two collateral ections will complement the theme of the interational exhibition: *Cities of Stone*, curated by laudio D'Amato Guerrieri, and *City-Port*, rated by Rinio Bruttomesso. Fifty countries ill be represented. For more information, call 9 041 5218711 or visit www.labiennale.org.

earning from North Lawndale: efining the Urban Neighborhood in the 1st Century
hicago
eptember 14–November 19, 2006

ere are many common threads between icago's North Lawndale and other low-income eighborhoods in the process of gentrification roughout the country. An abundance of empty ts and a legacy of city deinvestment, absentee ndlords, and abandoned buildings are some ings these places share. Also present are a core determined residents and supportive religious d social institutions. The Chicago Architectural ub selected North Lawndale as the site for the 06 Burnham Prize Design Competition to plore 21st-century urban issues. This exhibition presents all the entries submitted for the first ase of the competition. The finalists will be cluded in the upcoming exhibition, *Learning m North Lawndale: Past, Present and Future.* the Chicago Architecture Foundation. Call 2/922-3432 or visit www.architecture.org.

The Architecture of Ratcliff: A Retrospective on 100 Years of Distinguished Architecture
Oakland
October 1–December 31, 2006

Highlights of this exhibition include photographs of architectural landmarks in California designed by the Bay Area's Ratcliff firm. Among the projects featured are the Oakland Airport Terminal II; Mills College, in Oakland; the Wells Fargo Building, in Berkeley; the University of California, Berkeley Life Sciences Building; the Veteran's Administration Hospital in Palo Alto; Berkeley City College; Kaiser Permanente Medical Center in Fresno, and many more. The show is being held at the Oakland Museum of California. For additional information, call 510/238-2200 or visit the firm's Web site at www.ratcliffarch.com/centennial.

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Dates & Events

Ongoing Exhibitions

**Joe Colombo:
Inventing the Future
Weil am Rhein, Germany**

Through September 10, 2006

One of the most successful designers of his time, Colombo produced design classics such as the Elda armchair, the Universale chair, and the Alogena lamp. Colombo died in 1971 at 41. Produced in close cooperation with his estate, the exhibition—the first international retrospective of Colombo's work—presents an abundance of never-before-shown materials. These include early original objects and prototypes of his most important furniture designs, as well as many original rough sketches, plans, brochures, architectural models, and several films and original photos. At Vitra Design Museum. For more information, call 49 76 21 702 3200 or visit www.design-museum.de.

**Prairie Skyscraper: Frank Lloyd Wright's Price Tower
Washington, D.C.**

Through September 17, 2006

Organized by Price Tower Arts Center, in Bartlesville, Oklahoma, in cooperation with the Frank Lloyd Wright Foundation, in Scottsdale, Arizona, *Prairie Skyscraper* will present for the first time a comprehensive selection of the arts center's collection of historic artworks and objects relating to the Price Tower, including never-before-exhibited Wright documents and drawings from its own holdings and from those of the Wright Foundation's archives. The exhibition will be held at the National Building Museum. For more information, call 202/272-2448 or visit www.nbm.org.

**Crafting a Modern World: The Architecture and Design of Antonin and Noemi Raymond
Philadelphia**

Through September 24, 2006

Antonin Raymond (1888–1976) and Noemi Raymond (née Pernessin, 1889–1980) were married in 1914 and worked as partners in design for more than 60 years. Through their work, the Raymonds were able to forge a meaningful connection with the ancient traditions of Japan that widened the visual as well as the nonvisual possibilities of Modern design. This retrospective includes some 200 works, including drawings, models, photographs, videos, furniture, and other objects. At the University of Pennsylvania School of Design. For information, call 215/898-8323 or visit www.design.upenn.edu.

**Artist's Choice:
Herzog & de Meuron
New York City**

Through September 25, 2006

The seventh exhibition in MoMA's *Artist's Choice* series, in which contemporary artists are invited to select, juxtapose, and commen on works from the museum's collection. Drawing from across the museum's departmental collections, the internationally renowne architects Jacques Herzog and Pierre de Meuron approach the project not as conventional art curators, but as architects. At the Museum of Modern Art. To reach the museum, call 212/708-9400 or visit www.moma.org.

**Best of Friends: Buckminst
Fuller and Isamu Noguchi
Long Island City, N.Y.**

Through October 15, 2006

The relationship between the artis Isamu Noguchi and visionary designer and inventor Buckminst Fuller is illuminated in this special exhibition, which includes models sculptures, drawings, photograph film footage, and letters. At the Noguchi Museum. Call 718/204-7088 or visit www.noguchi.org.

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oam 10: A Utopia of the resent
ew Haven
eptember 5–October 20, 2006
1956, several young architects rom England, France, the etherlands, and Italy were harged with organizing the 10th eeting of the International ongress of Modern Architecture IAM), a formal gathering of proonents of Modernism. This ultimedia show pays homage the coterie of pan-European rchitects who, challenging the rthodoxies of Modernism in ost–World War II Europe, raised sues of urban design that connue to reverberate in architectural scourse today. This exhibition aws on a range of resources d media that includes correondence, transcripts, tape cordings, photographs, drawings, d film. At Yale's landmark Art d Architecture Building. For ore information about the exhibin, call 203-432-2288 or visit ww.architecture.yale.edu.

Insight Out
Knislinge, Sweden
Through October 22, 2006
An exhibition of eight American artists showing site-specific installations in the Park, in the Stable, and in the Sculpture Yard surrounding the Wanas medieval castle. The work investigates subject matter such as architecture, narrative, scientific processes, and psychological perception. At the nonprofit Wanas Foundation. Call 46 44 660 18 or visit www.wanas.se.

Zaha Hadid
New York City
Through October 25, 2006
The first woman to be awarded the distinguished Pritzker Architecture Prize, which she won in 2004, Hadid is internationally known for both her theoretical and academic work, as well as a portfolio of built projects that have literally "shifted the geometry of buildings." This exhibition provides a comprehensive look at her projects worldwide. True to Hadid's interdisciplinary approach to architecture, there is a wide range of mediums on display, including painting, drawing, large-scale urban plans, proposals for international design competitions, building designs for contemporary cultural and sports facilities, and documentation of current projects under construction. At the Solomon R. Guggenheim Museum. Call 212/423-3500 or visit www.guggenheim.org.

Seattle Architecture Foundation Tours
Seattle
Through October 28, 2006
Seattle Architecture Foundation connects people to architecture through popular guided walking tours, exhibitions, youth programs, and public forums—programs that inspire participants to engage in shaping their community. Visit www.seattlearchitecture.org.

Cantilever-Chairs: Architectural Manifesto and Material Experiment
Vienna
Through October 29, 2006
The Cantilever-Chair represents one of the most significant examples of avant-garde design of the 1920s. These steel-tube chairs stem from the Bauhaus movement and the German Werkbund, and still challenge architects and designers today to experiment anew with their form and material. The exhibition covers more than 80 years of innovative suspension design with chairs by Marcel Breuer and Ludwig Mies van der Rohe, right up to Tom Dixon and Ross Lovegrove. In the MAK Study Collection Rooms. Visit www.mak.at.

The Chicago Architecture Foundation Architecture River Cruises
Chicago
Through November 19
Led by trained volunteer docents, these cruises are well known as highly enjoyable as well as educational. They visit 53 historic sites that include the Wrigley Building, Merchandise Mart, the

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Tribune Tower, Sears Tower, Marina City Towers, River City, and many more. The docents also provide background information on the lives of many of Chicago's famous architects and firms: Daniel Burnham, Graham Anderson Probst, Bertrand Goldberg, Mies van der Rohe, Helmut Jahn, Skidmore, Owings & Merrill, and Kohn Pedersen Fox. The cruises start on the lower level of the Michigan Avenue Bridge, at the southeast corner, just below the Hyatt Regency Chicago Hotel. Call 312/902-1500 or visit www.architecture.org.

The Loop: Designs for a Vertical City
Chicago
Through November 25, 2006
An exhibition of original conceptual and design drawings, working blueprints, and hectographs from the historic archives of D.H. Burnham and Company. ArchiTech's collection of vintage photographs by Richard Nickel and Aaron Siskind capture the heroic era of building in Chicago's famed Loop, the epicenter of skyscraper invention. At ArchiTech Gallery. Call 312-475-1290 or visit www.architechgallery.com.

Investigating Where We Live
Washington, D.C.
Through November 26, 2006
Celebrate the opening of this new exhibition showcasing the results of the National Building Museum's five-week outreach program "Investigating Where We Live" (IWWL). IWWL teaches young people to use photography as a tool for exploring and documenting neighborhoods in Washington, D.C. Through this process they gain an understanding of city planning, architecture, photography, and exhibition design. As part of a partnership with the Anacostia Community Land Trust, participants explored three neighborhoods in the Southeast quadrant of the city. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Some Assembly Required:
Contemporary Prefabricated Houses
New Haven
Through February 2, 2007
This exhibition featuring the work of eight contemporary architecture studios demonstrates how far prefabricated homes of the digital age have come from the "straight-off-the-assembly-line" look of the mid-20th century. At the Yale School of Architecture. Call 203-432-2288 or visit www.architecture.yale.edu.

Lectures, Conferences, and Symposia

Lecture: The Virginia State Capitol:
Restoring Jefferson's Iconic Building
Washington, D.C.
September 7, 2006
The Virginia State Capitol, designed by Thomas Jefferson and completed in 1788, is currently undergoing a large-scale restoration and expansion. James Wootton, executive director of Capi Square Restoration Council, will discuss the $9 million project, which is adding 25,000 square feet to the capitol (currently the second smalle in the nation), including a new entrance, a visitor's center, and a café located under the south lawn. This project is taking place among the renovation and rehabilitation of several state buildings on Capitol Square in Richmond, Virginia. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Promosedia 2006:
International Chair Exhibition
Udine, Italy
September 9–12, 2006
An overview of the world of chairs as well as tables, this show includes products for residen use, contract, office, and community, and features everything from upholstered to outdoor furniture. With vendors from over 120 differen countries, the exhibition is a major reference point for the international trade. At Quartiere Fieristico Showgrounds. Call 39 0432 745 61 or visit wwww.promosedia.it.

High Performance, Green
Commercial Buildings
Washington, D.C.
September 13, 2006
With 40 percent of U.S. primary energy consumed by buildings, companies large and sma are implementing energy-efficient design and building strategies to reduce energy consumption. Nonprofit organization Southface Energy Institute has worked with companies like IKEA and the Atlanta Community Food Bank, helpin them meet high-performance green building guidelines. Dennis Creech, cofounder and exe tive director of Southface, will talk about the benefits to and strategies for improving buildi energy consumption. He will also talk about Southface's own headquarters, the Eco Office which will showcase the best "off the shelf" energy and environmental technologies for s

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:ommercial buildings. At the National Building Auseum. Call 202/272-2448 or visit vww.nbm.org.

.ondon Design Festival 2006
.ondon
;eptember 15–30, 2006

:stablished in 2003 to celebrate and promote .ondon as the creative capital of the world, the .ondon Design Festival (LDF) has rapidly grown o become one of the key constituents of the J.K.'s burgeoning festival season, along with .ondon Fashion Week and the London Film 'estival. Disciplines include architecture, fashion, ırniture, textiles, craft, product, digital, interiors, ınd jewelry. Visit www.londondesignfestival.com.

.ivable Communities: Walking, Working, Vater Conference
;eattle
eptember 15–17, 2006

his conference will explore the balance between rban development and the environment, focus- ıg on opportunities related to walking, working, nd water. Using the past, present, and future of eattle and the greater Puget Sound region as a oint of departure, the conference will discuss ational issues and how those issues affect the ost community. At the Seattle Marriott /aterfront. Call 800/242-3837, 202/626-7300, r visit www.aia.org.

ilm: Modernism on Film:
he Architecture of John Lautner
/ashington, D.C.
eptember 16, 2006

lodernist architect John Lautner began his areer in Los Angeles and grew to be known for s visionary creations. The film *The Spirit in ·chitecture: John Lautner* (58 min.) explores the ·chitect's profound designs through interviews ith historians, critics, collaborators, clients, and autner himself. At the National Building Museum. all 202/272-2448 or visit www.nbm.org.

ıe 12th Asian Conference of Architects nd 27th Arcasia Council Meeting
eijing
eptember 17–22, 2006

ıis year's conference theme is "The Transition Cities and Architecture in Asia" and is hosted the Architectural Society of China (ASC). eynote speakers include Wu Liangyong, China; enneth Yeang, Malaysia; Zhang Jinqiu, China; ıd Choon-Soo Ryu, Korea. For information, call

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86-10-88082234, 88082237 or visit http://www.chinaasc.org .

Lecture: Structure, Identity, and Existence in the Work of Team 10
New Haven
September 18, 2006
The distinguished architect and author Kenneth Frampton will deliver a lecture in connection with the exhibition *Team 10: A Utopia of the Present.* At the Yale School of Architecture. Call 203/432-2288 or visit www.architecture.yale.edu.

Symposium: Team 10: Thoughts on a Shiny New Brutalism
New Haven
September 21, 2006
This symposium, offered in conjunction with the Yale exhibition on Team 10, examines the legacy of the group as it intersects with contemporary architectural thought and production. Long marginalized, the work of Team 10 and its core protagonists Aldo van Eyck, Alison and Peter Smithson, Giancarlo de Carlo, and Shadrach Woods is the subject of renewed historical and theoretical interest as architectural discourse turns once again to the intersections of architecture, urbanism, infrastructure, landscape, and society. At the Yale School of Architecture. Call 203-432-2288 or visit www.architecture.yale.edu.

CERSAIE 2006
Bologna, Italy
September 26–30, 2006
The world's largest international exhibition of ceramic tile and bathroom furnishings will feature over 1,000 exhibitors from 32 countries. This year's seminar program includes Thomas Mayne, 2005 Pritzker Prize winner and cofounder of Morphosis and SCI-Arc, and renowned Italian architect Massimiliano Fuksas, as key speakers. Designed by architects Dante Donegani and Giovanni Lauda, Cersaie's large central exhibit is inspired by the evolution of the bathroom from an essential functional room to a more complex space. This "oasis of wellness" will be constructed using Italian ceramic tiles and bathroom fixtures from leading manufacturers and explore new trends in color, texture, and shape. At the Bologna Fairgrounds. Visit www.cersaie.it or www.italiatiles.com.

The International Forum on Architectural Criticism 2006 (IFAC '06)
Singapore
September 27–28, 2006
This inaugural forum will be a unique and state-of-the-art biannual event featuring prominent speakers and critics with diverse educational backgrounds and professional experiences. The forum provides a platform for an international community of architectural critics to formally debate and discuss the context, roles, and the many dimensions of architectural criticism through discourse. At Meritus Mandarin Singapore. Call 65/6878-6138 or visit www.upremascollege.com.

Resurfacing the City: A Lecture Series
Houston
September 27–October 18, 2006
This lecture series will examine the renewed rol of landscape and its emergence as an importar motif in the discourse on architecture and urbanism. It will bring together the most innova tive practitioners and thinkers of landscape as urbanism. James Corner of Field Operations wil present the opening lecture. At the Museum of Fine Arts, Brown Auditorium. Call 713/348-487 or visit www.rice.edu.

Urban Waterfronts 24: Celebrating 20 Years of Excellence on the Waterfront
Portland, Ore.
September 28–30, 2006
The Waterfront Center's annual international c ference. For more information, call 609/884-79 202/986-2549 or visit www.waterfrontcenter.c

Symposium: The Dynamic Economies Asia and Global Wellness—Opportunities for the Pittsburgh Regi
Pittsburgh
October 3, 2006
This symposium raises scholarship money for Carnegie Mellon School of Architecture studen The goal is to connect the business, medical, policy, architecture, and the academic fields t recognize ways to adapt metro regions into a global economy. At Carnegie Mellon School o Architecture, McConomy Auditorium and Ran Ballroom. Call 412/268-9554 or visit www.andrew.cmu.edu.

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October 3–5, 2006
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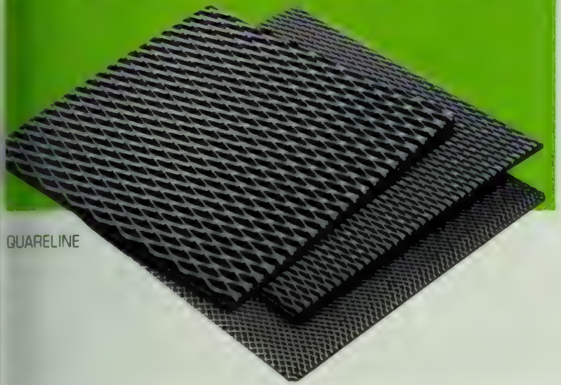

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Pacific Crossings: 2006 AIA Northwest & Pacific Region Conference and AIA Committee on Design Fall Conference
Hong Kong and Shanghai
October 16–22, 2006
AIA Hong Kong in collaboration with the AIA Committee on Design hosts *Pacific Crossings*, a weeklong event that merges the 2006 AIA Northwest & Pacific Region Conference with the AIA Committee on Design Fall Conference. Beginning in Hong Kong and concluding in Shanghai. For information, visit www.aiahk.org or call 852/2882-6011 or 202/626-7468.

Competitions

Imagining Penn Center: A National Student Design Competition to Plan New Life for Philadelphia's Central Civic Space
Deadline: September 15, 2006
Penn Center is one of Center City Philadelphia's most important spaces, housing Suburban Station, office towers, retail, and public plazas. Originally conceived by the late Edmund N. Bacon, Philadelphia's renowned former planning director, Penn Center changed the face of the city when it was built in the 1960s as one of the largest and most ambitious downtown redevelopments of its time. Today, Penn Center is vastly underutilized by the public, yet it holds great potential for revitalization. The Ed Bacon Foundation challenges students to imagine the site's potential and to generate ideas for restoring this important space as a modern Philadelphia epicenter and icon. For additional information on the competition, visit www.edbacon.org/penncenter.

Fire Station Design Awards Program
Deadline: September 15, 2006
The Fire Industry Equipment Research Organization (FIERO), in conjunction with the International Association of Fire Chiefs (IAFC) and *Fire-Rescue* magazine, invites submissions for its awards program to encourage excellence in fire station design. The awards program is being held as a part of FIERO's 5th National Symposium on Fire Station Design. To learn more, visit www.fierofirestation.com.

BSA's 2007 Research Grants in Architecture Program
Deadline: September 22, 2006.
Individuals and teams (architects, academics, designers, product developers, students, etc.) in the national design and construction industry seeking support for an original research project are encouraged to submit application to the BSA's 2007 Research Grants in Architecture program. The BSA is again offering up $75,000 in research grants to designers nationwide. This progra supports original research project Call 617/951-1433 or visit www.architects.org/grants.

Inter-school Student Desig Competition
Washington, D.C.
September 24–25, 2006
Teams of students from the Washington, D.C., area's four accredited schools of architecture will participate in a daylong desig competition held in the National Building Museum's Great Hall.

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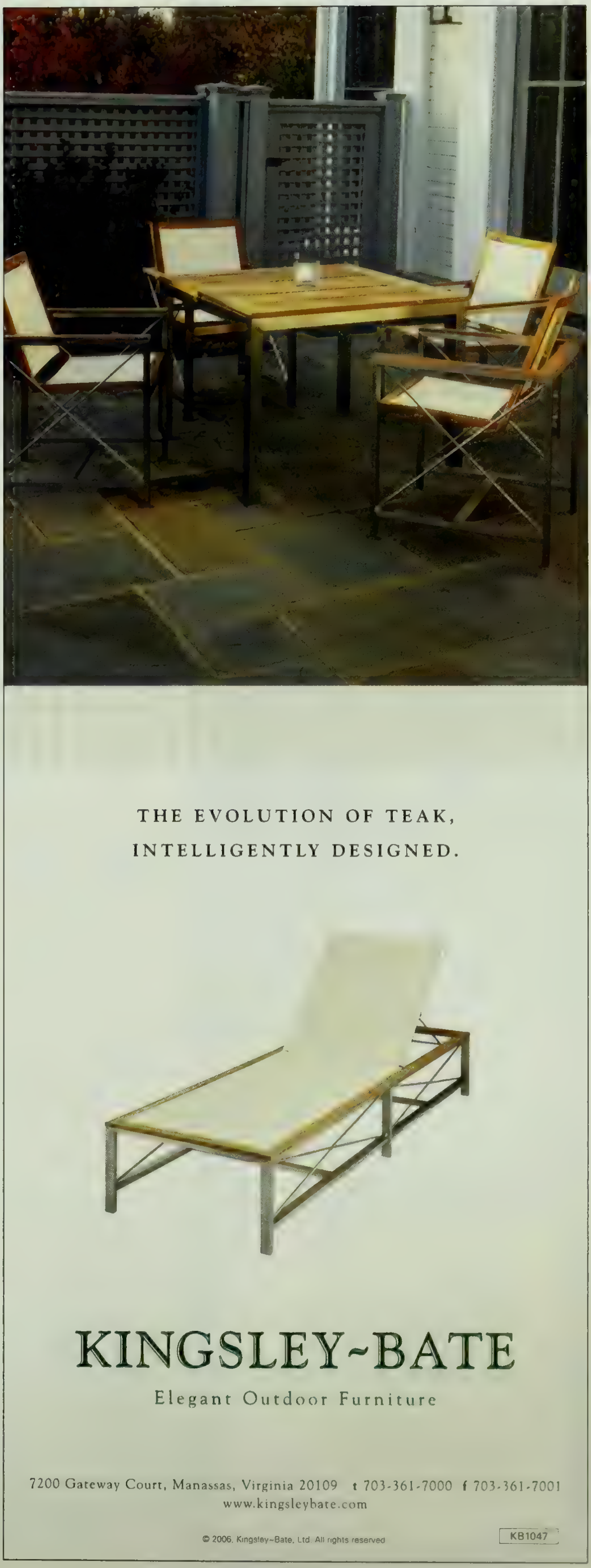

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Dates & Events

Each team will consist of one student from each school. Museum visitors can view this charrette in progress, as the teams work on a design project announced that morning. Winners of the juried competition will be announced at an award ceremony and reception. At the National Building Museum. For registration call AIA/D.C. at 202/667-1798 or e-mail info@aiadc.com. For information, call 202/272-2448 or visit www.nbm.org.

The 5th Tile of Spain Awards of Architecture and Interior Design
Deadline: October 31, 2006
Sponsored by the Spanish Ceramic Tile Manufacturers' Association (ASCER), these awards recognize outstanding architectural and interior design projects using ceramic tiles from Spain. Prizes totaling 45,000 euros are being offered. The competition is open to professional architects, interior designers, architectural engineers, landscapers, and decorators of all nationalities. Entries may represent new construction, renovation and restoration projects, urban development projects, or exterior landscaping. Visit www.spaintiles.info/awards.

The 2nd Annual JELD-WEN Student Door Design Contest
Deadline: November 1, 2006
Individuals are invited to create and submit original designs for residential front doors, focusing on the theme of "honoring architecture." Visit www.jeld-wen.com/studentdesign to learn more.

2007 Palladio Awards
Deadline: November 15, 2006
Submissions are now being accepted for the 2007 Palladio Awards. The sixth annual competition will recognize outstanding work in traditional design for commercial, institutional, and residential projects.The Palladio Awards program is coproduced by *Traditional Building* and *Period Homes* magazines. For more information, visit www.palladioawards.com.

3rd Annual Eye for Why
Deadline: December 18, 2006
A U.S.-based design competition that encourages students to think differently by designing products that solve everyday problems. Entries submitted by participating students must exemplify a product that solves a problem, works well, and provides a real advantage over existing offerings. The competition is open to students at any of the

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11 wednesday, 6:30 – 8:00 pm
Ritual House: Drawing on Nature's Rhythms for Architecture and Urban Design with Ralph Knowles

16 monday, 6:30 – 8:00 pm
Off the Grid: Modern Homes + Alternative Energy with Lori Ryker

23 monday, 6:30 – 8:00 pm
Spotlight on Design Lecture series with Paolo Soleri

november

15 wednesday, 12:30 pm
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2007 International Bamboo Building Design Competition

Registration deadline: December 31, 2006
Submission deadline: January 15, 2007
Bamboo Technologies of Maui has launched the first International Design Competition for Structural Bamboo Buildings. Some of the winning entries will be chosen for manufacture by the world's premier builder of international-building-code-approved bamboo homes. The competition is open to architects, builders, designers, and students anywhere in the world. Visit www.bamboocompetition.com.

Insight Pro Microwave Drawer Kitchen Design Contest

Deadline: March 1, 2007
The contest will recognize professional kitchen designers for the most inspired kitchen designs that incorporate one of Sharp's innovative Insight Pro Microwave Drawer cooking appliances. Sharp will select five winning designs that will be announced publicly at the Kitchen and Bath Industry Show 2007 in Las Vegas. The winning designers, along with the homeowners with the winning kitchens, will each receive Sharp AQUOS Liquid Crystal Televisions. For more information, visit www.sharpusa.com/drawerdesigncontest.

2007 Aurora Awards

Deadline: March 9, 2007
Builders and architects who have demonstrated excellence and creativity when designing hurricane-resistant structures are invited to submit projects to the 2007 Aurora Awards, a design competition recognizing projects in the Southeastern United States. Solutia, a manufacturer of polyvinyl butyral (PVB) interlayers for impact-resistant glass, is sponsoring a new category in the competition. The Safe & Secure Award will recognize builders, designers, architects, and other home building professionals who incorporate—and meet or exceed code requirements for—impact-resistant windows and doors for safety, and use other design elements that minimize the effects of hurricanes and other disasters on residential structures. For more information, visit www.theauroras.com.

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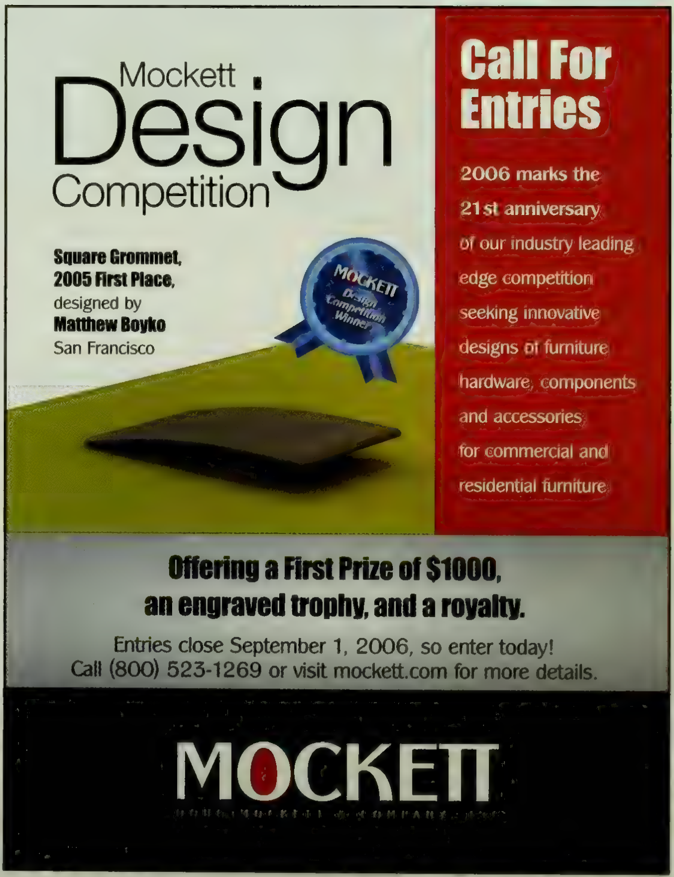

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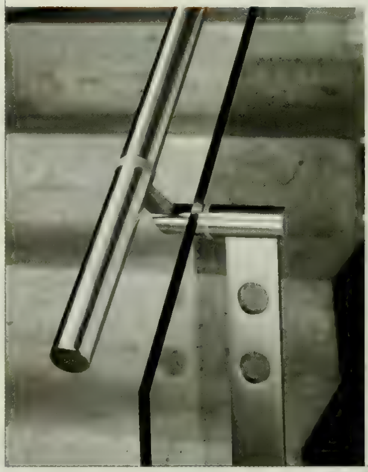

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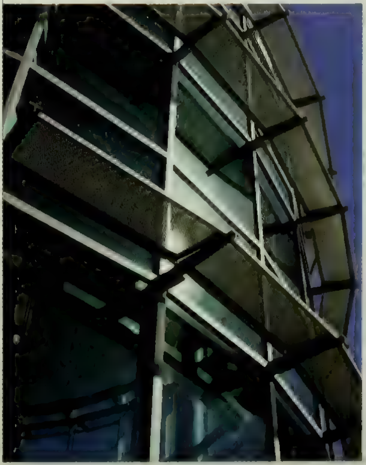

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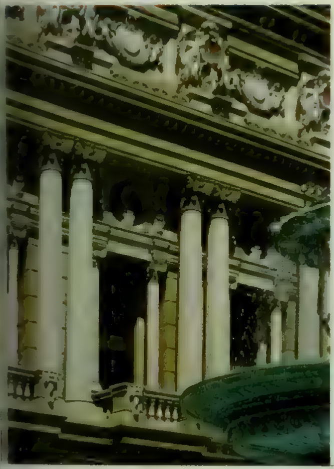

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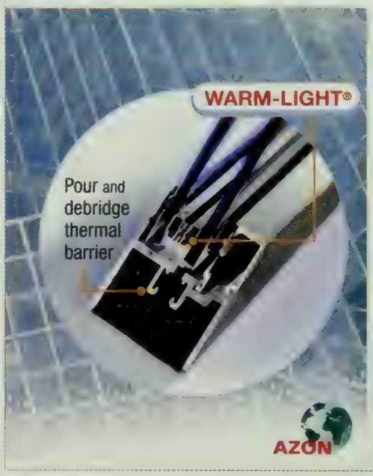
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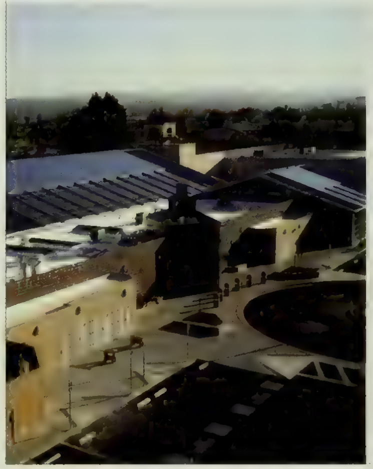

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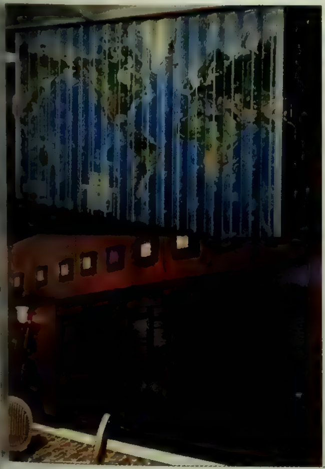

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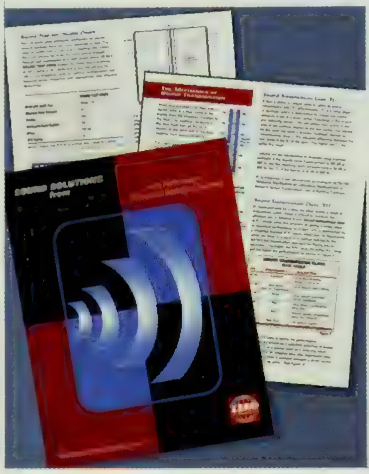
Zero International, Inc.



A definitive guide to understanding the science of sound as it applies to doors and door openings. This 20-page brochure discusses the principles of acoustics and noise problems, explains the transmission of sound and how it's measured, provides a good working knowledge of STC ratings for door openings, along with an understanding of the role of gasketing in achieving the needed STC values. The brochure's second half discusses the steps for practical application, plus specific gasketing and components for maximum sound control. Free in printed form or on the Web.

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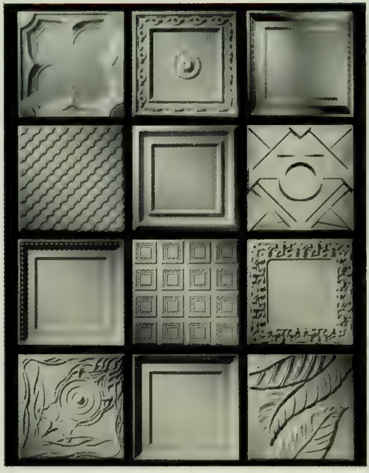
www.zerointernational.com

| Circle Reader Service #171

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

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| Circle Reader Service #172

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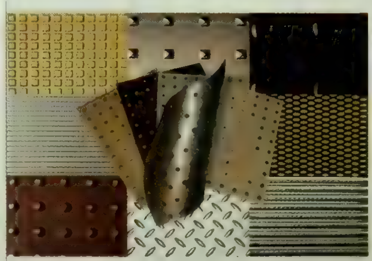
Architectural Products by Outwater, LLC



Manufactured of thermoplastic styrene in a variety of unique, trendy 3-D textures to simulate the look of real metal, Outwater's "Structure" Plastic Embossed Sheets are not only lightweight, unbreakable and easy to install using ordinary adhesives, but because of their highly flexible nature they are also well suited for use in unorthodox applications such as those with curved surfaces. Free 1,100+ page master catalog.

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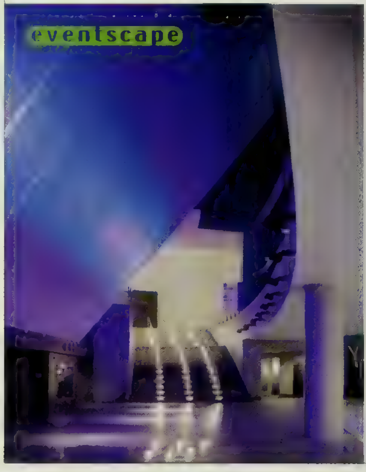
Eventscape Inc.



A custom sloping panelized frame and fabric wall system built for the 408-ft.-long concourse of this new arena in Stockton, CA. Colored lighting illuminates the 21,000-sq.-ft. surface. Just one example of the numerous custom wall and partition solutions engineered and fabricated to meet your specifications. View their complete portfolio on Eventscape's web site. "Create without boundaries."

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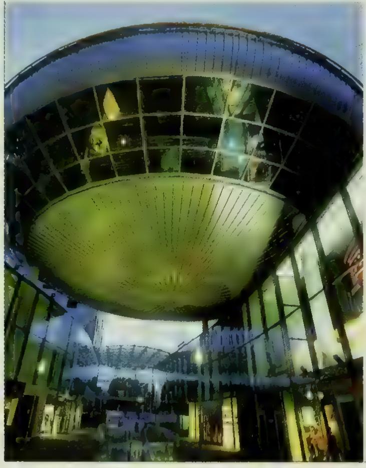
Corus Building Systems



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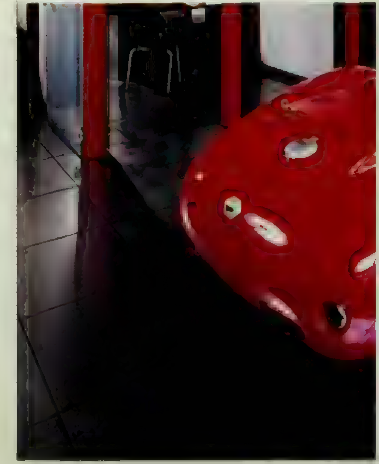
Stainless Steel Floor System

Gage Corporation



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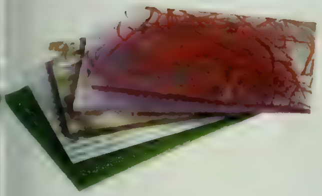
ranslucent Panels

litchcock Fleming & Associates, Inc.



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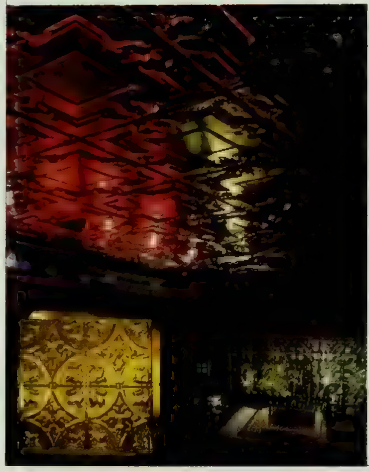
The American Tin Ceiling Co.



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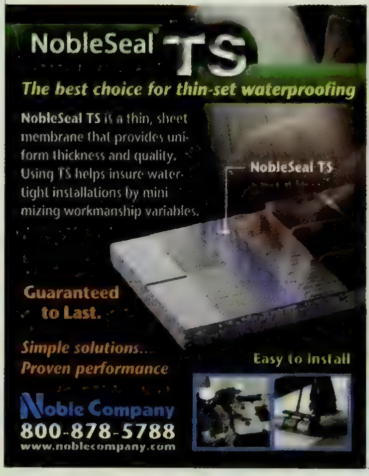
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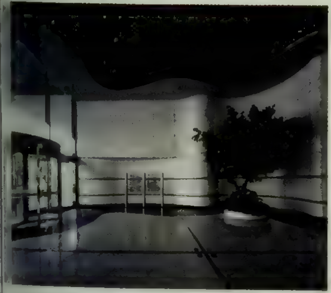

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| Circle Reader Service #182

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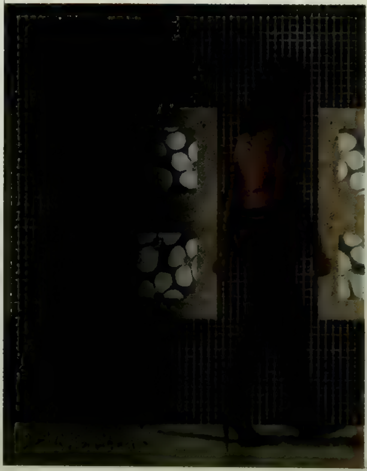
Viva Ceramica



Even though they had introduced Central Station at Cersaie 2005 as a color through porcelain floor tile series, it was easy to convert it to a wall covering. It's just so adaptable with its suggestions of metal and its decorative squares and circles in crackle glaze. And both the big diameter and the 30cm square are ideal for minimalist mosaic decors in bathrooms or on walls in public areas.

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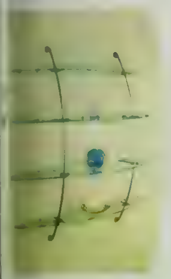

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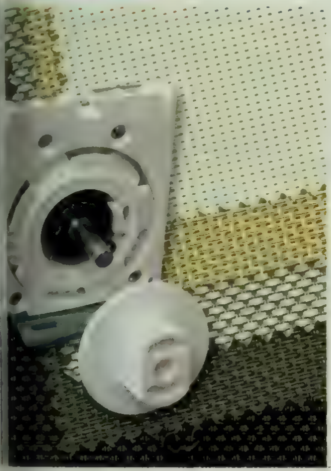
echoShade Systems



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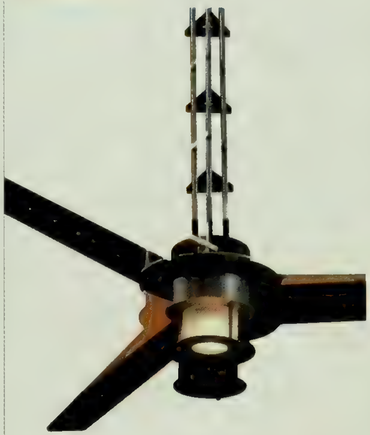

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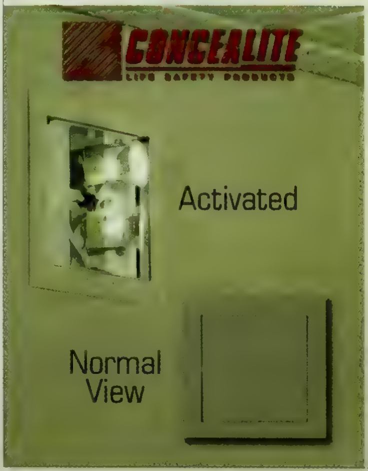

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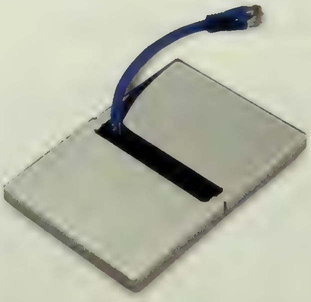

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Dream Firms

Vhat makes some architecture firms the best places to work?

acing a nationwide shortage of architects, p U.S. architecture firms are waging an ic battle to lure the best and brightest. he focus of the competition is creating ore attractive places to work. But can ms really do much to be better? National m leaders think so. Here's what they tell b shoppers:

1. Consider the fundamentals.

's the quality of the projects you're working , combined with the architects' interaction ith firm principals," says Timothy S. edy, CEO of Miami-based Arquitectonica. Ve've got a huge variety of projects all er the world, and that's most important."

gh–profile buildings attest to other positive its, adds William W. Hastings, principal Nashville's Hasting Architecture associates: 's a circle: The great project attracts the eat people who create the great culture ich leads to the next commission."

If project quality leads, then large multi-tionals have an edge, says Bill Hellmuth, A, president of St. Louis-based Hellmuth, ata + Kassabaum (HOK). "Today we can ve more project types and more interesting rk than just about anybody else," he plains. Plus, there's the allure of global vel: "We can offer that option to work in anghai or Edinburgh, and that really kes a difference in career development," ds Ray A. Landy, AIA, president of JM-HN in Los Angeles.

2. Look for teamwork.

t every firm can boast work in exotic ales, so many firms tout healthy team amics at home.

'Young folks might worry they'll get lost the shuffle," says Keith Boswell, AIA, a tner at Skidmore, Owings & Merrill OM). "That's why our San Francisco ce is studio based and team oriented. When people are part of a team, they're more likely to ask questions and, more importantly, offer opinions." Collaborative spirit at Cincinnati-based FRCH bridges architects, branding specialists and web designers. "It's a cool environment because of all these different disciplines and backgrounds. Each person brings a unique perspective," says Mike Otto, FRCH manager of human resources. Ideally, teamwork engages all ranks, adds Meg Brown, director of HR at Perkins& Will: "Everybody wants to work with Ralph Johnson, and though we're a big firm we don't feel like one. He's just a phone call away,"

Even an office layout can affect interaction, adds Otto, describing FRCH's four floors of totally open-plan offices. The workplace also advertises core design philosophies, as at Hastings' environmentally friendly adapted warehouse. "We designed it for the LEED rating and an enjoyable environment, but we got lucky: It also attracts great people," Hastings relates.

3. Check for extracurriculars.

Beyond office design, look for signs of a stimulating, renaissance organization, says TJ Gottesdiener, an SOM partner in New York. "We have a professional development committee that puts on weekly seminars in the office, mostly at lunchtime for continuing education, and two or three evenings a month. It's very successful," he explains.

Other firms emphasize the after-hours calendar, keeping a busy slate of activities ranging from yoga classes to picnics. "We play our own clients in softball games and go to concerts," says Dominick Tringali, AIA, president of Dominick Tringali Architects (DTA), Bloomfield Hills, Michigan. "But mostly we experience great architecture together, hosting parties at places like Meadow Brook Hall."

4. Ask about career development.

Many activities support professional advancement, too. "We put a lot of effort into our Intern Development Program," or IDP, says Tim Milam, AIA, managing director of FXFowle, New York, including a twice monthly "Seminar Series" on design and technical topics. Detroit-based SmithGroup schedules weekly jobsite tours, and Atlanta based Thomspon, Ventulett Stainback (TVS) created "ID Charrette," in which interns competitively tackle IDP topics.

Another common benefit targets practice milestones: Many firms reimburse for professional memberships and exams for architectural registration and LEED certification.

5. In pay and benefits, creativity counts.

Yes, money matters too, so top firms offer competitive – and creative – packages. Fast growing shops like DTA boast of profit sharing, while TVS extends an employee stock-ownership plan. Such windfalls needn't be planned: Perkins & Will recently handed out spontaneous cash bonuses. "It had that 'wow' factor, but it was also a retention and recruitment tool," says Brown

Flexible work schedules are a hot seller, too. The day starts as early as 5am at DTA, while some HOK employees telecommute one or two days per week. SmithGroup offers 15 Fridays off in exchange for 8.5 hour days, with no use-it-or-lose-it penalty at year's end.

Principals quickly note that consistency and mutual trust vastly outweigh benefits in retaining great employees. And even when the fit is perfect, the best people might wander away. But a great place to work lures them back, says Reedy: "We're very happy about our return-after-departure rate."

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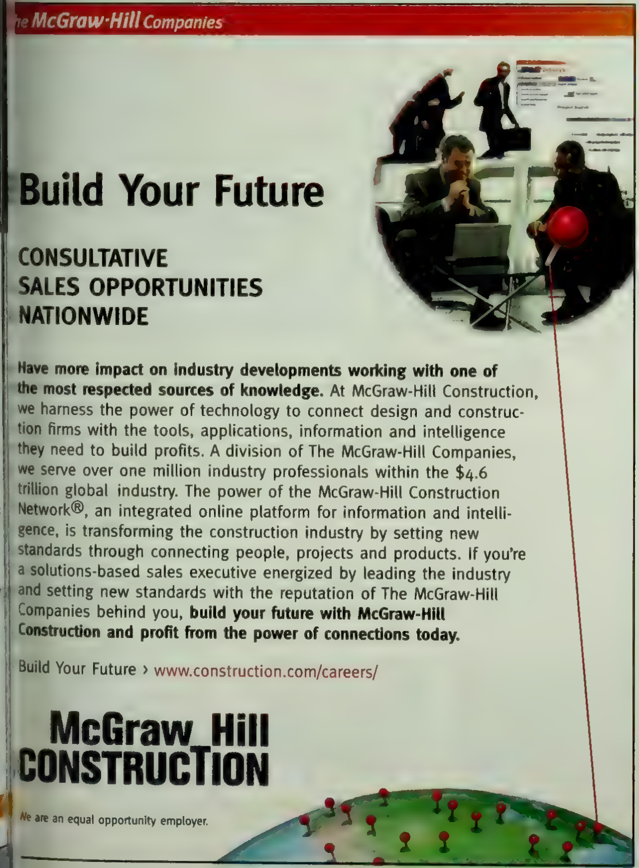

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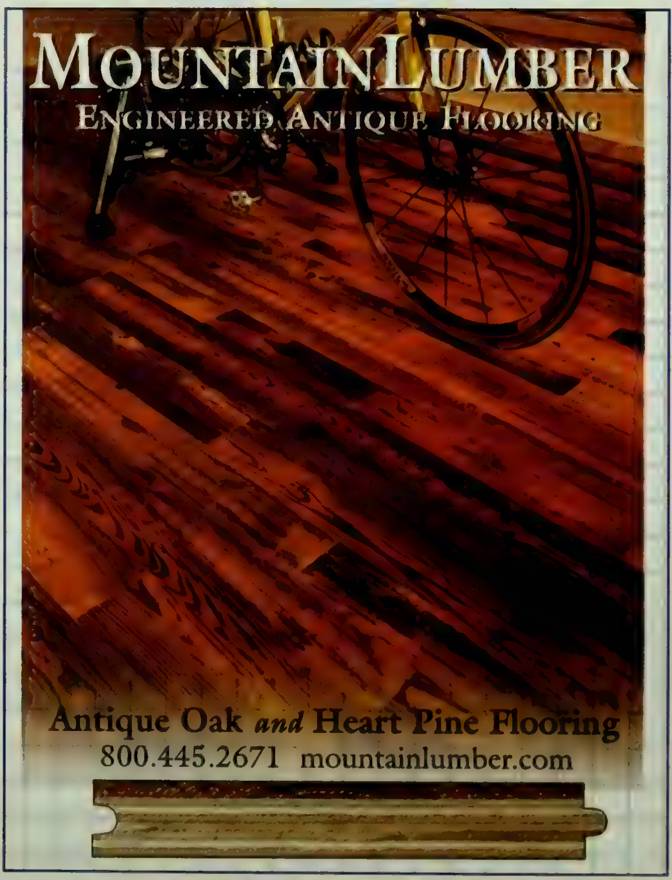

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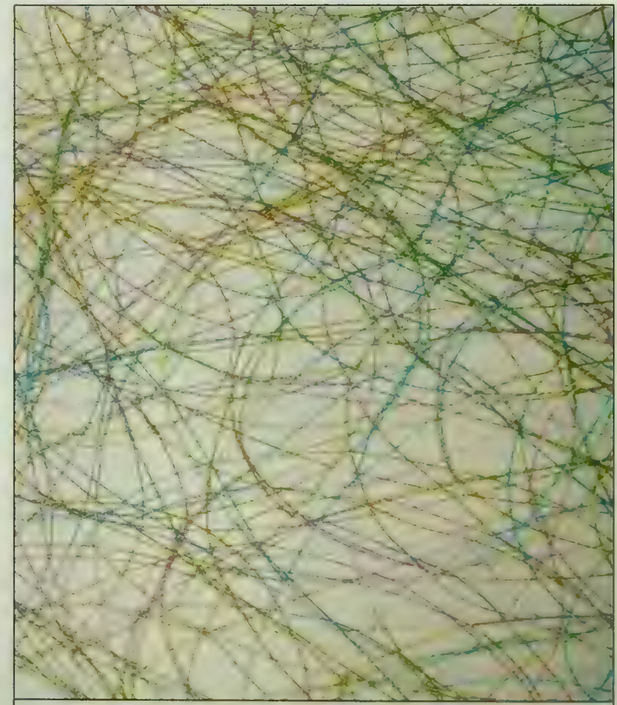

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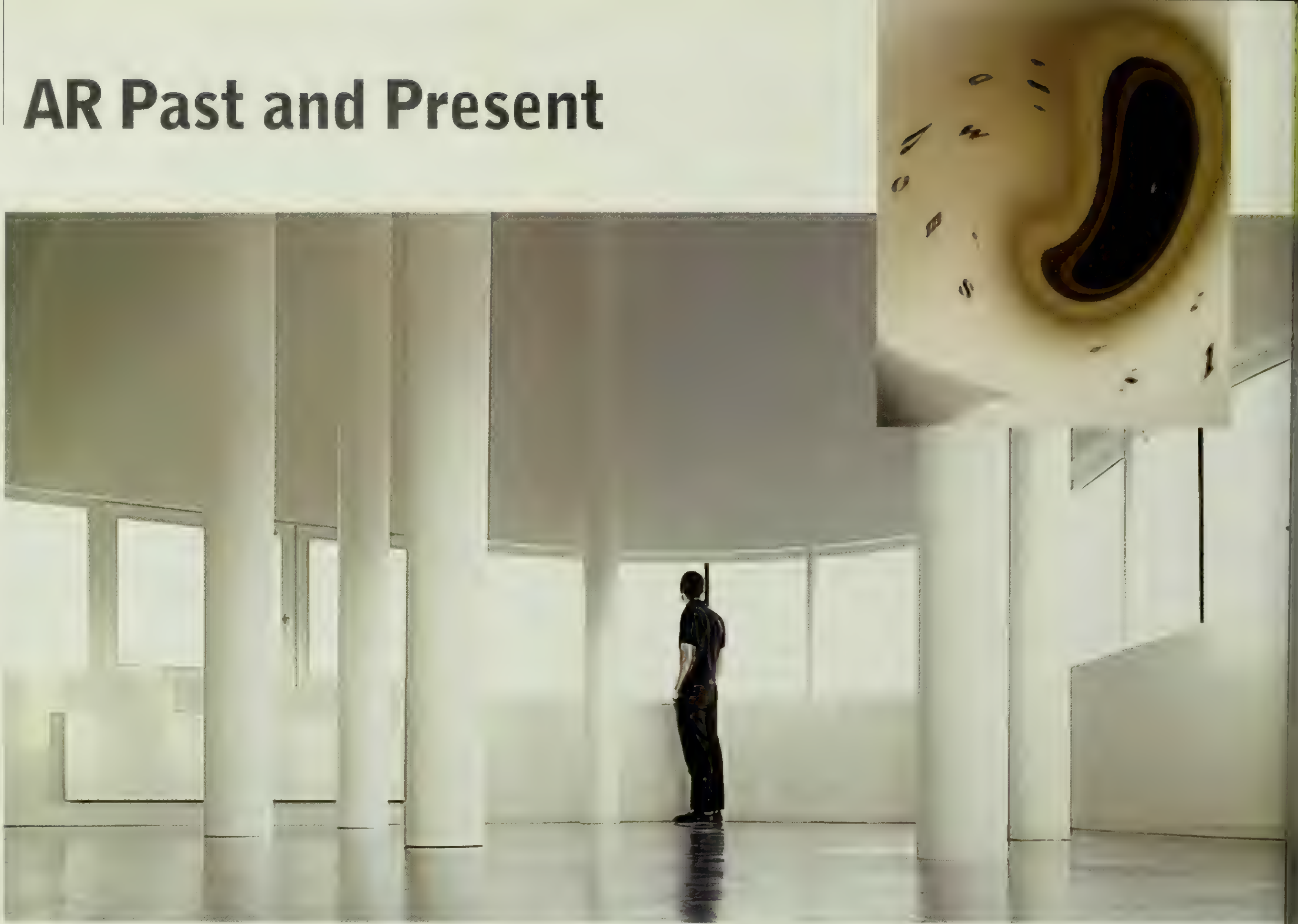

Inside the Wall (House 2)

From the pages of ARCHITECTURAL RECORD 2001

John Hejduk's legendary Wall House 2, designed in 1973, and built in Groningen, Holland, in 2001, now accomodates an artist-in-residence program where artists explore its interior spatial qualities.

Historically, the wall marks the threshold between interior and exterior. John Hejduk, however, confounded this model. In Wall House 2, the late architect envisioned the wall not as a mean of dividing space, but rather as the space itself.

In diagram, the house is composed of two walls, with a long wall doubling as a corridor intersect ing with an exaggerated concrete "front" wall. The three-story curvilinear living spaces project outwa from this flat plane, while an elevated study is extruded from the corridor wall on its opposite end. In moving around the interior, the resident (or visitor) must repeatedly pass through the front wall, while staying within the corridor wall.

This constant negotiation of the boundary calls into question the concept of the interior, for it is the interior that lies on either side of the house's front wall. Passage through the front wall no longer indicates entry or exit, but rather provides the nebulous architectural experience of being in a wall.

Originally designed for Hejduk's fellow Cooper Union faculty member, landscape architect Ed By the Wall House remained purely conceptual for almost 28 years, until it was built speculatively in 200 by the Dutch firm BAM. The house lingered on the market until 2004, and then was sold to an art foundation, which established an artist-in-residence program there. When the house was published in 2001 [RECORD, November 2001, pages 150–55], the interior had been left incomplete, with rough concrete floors, a lack of wall finishes, and no utilities. Now Otonomo Architects of Groningen, in collabora tion with the late architect's daughter, Renata Hejduk, has completed the interiors, adhering to Hejduk's original plan for white walls and gray floors (in contrast to his polychromatic exterior).

Artists stay in the house for three months and exhibit their work there. The program's inaugural exhibition, held in winter 2006, by Javier Marchán (inset, top), explores Hejduk's spatial proposition. The artist gives the surface of the wall a three-dimensionality that underscores its deployment as ar architectural experience, not as an inert tectonic element. *John Gendall*

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Zaha Hadid Architects, Phaeno Science Center, Wolfsburg, Germany, 1999-2005. Photo © Werner Huthmacher

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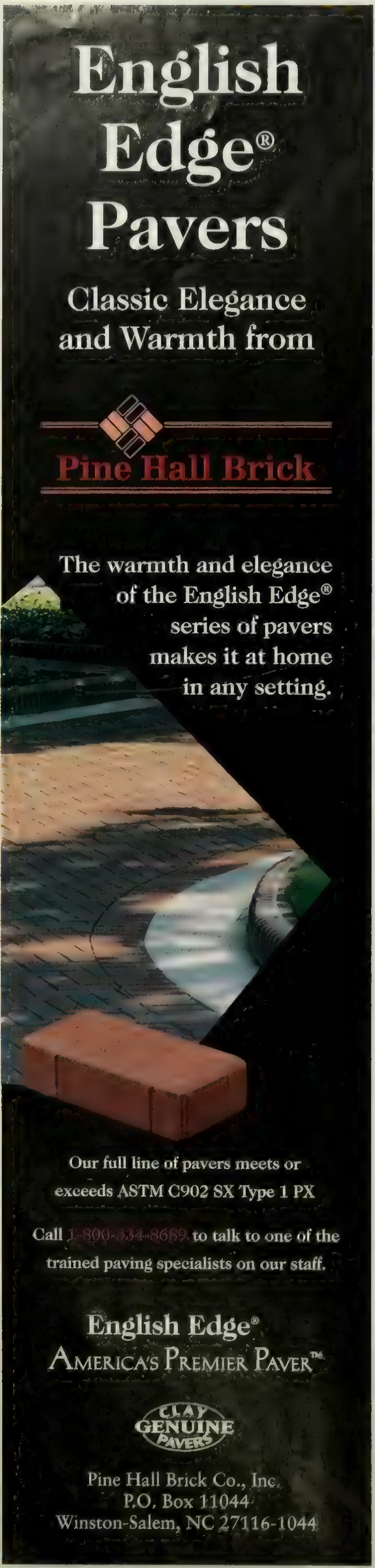
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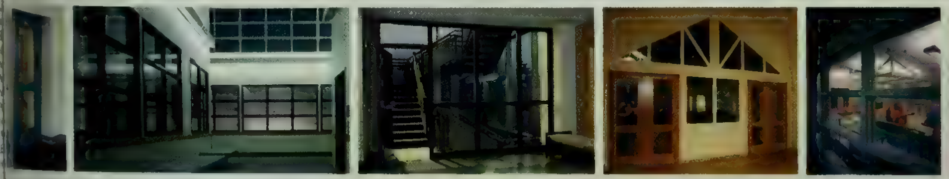

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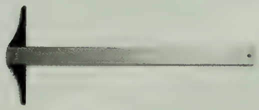

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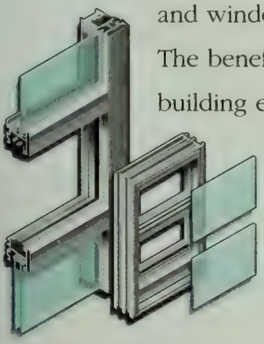

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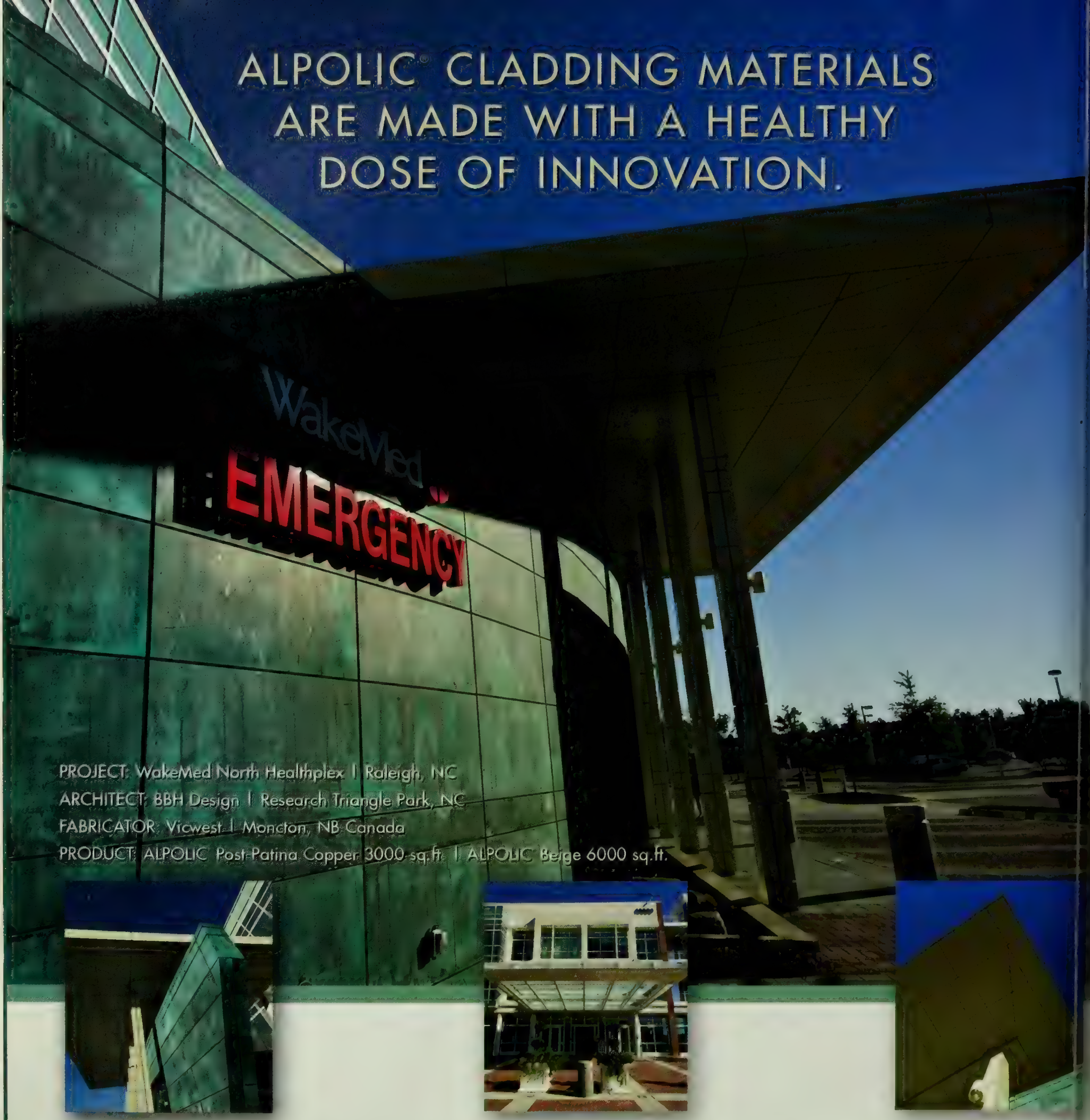
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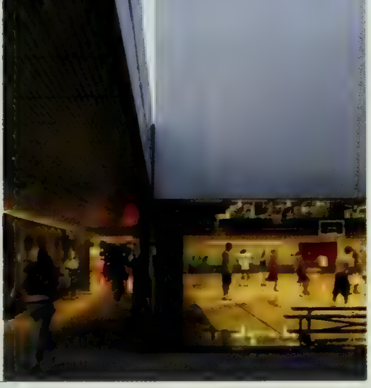
On the Cover: *University of Cincinnati Campus Recreation Center, by Morphosis. Photograph by Roland Halbe.*

Right: *Paolo Verde Branch Library and Maryvale Community Center, by Gould Evans and Wendell Burnette. Photograph by Bill Timmermann.*



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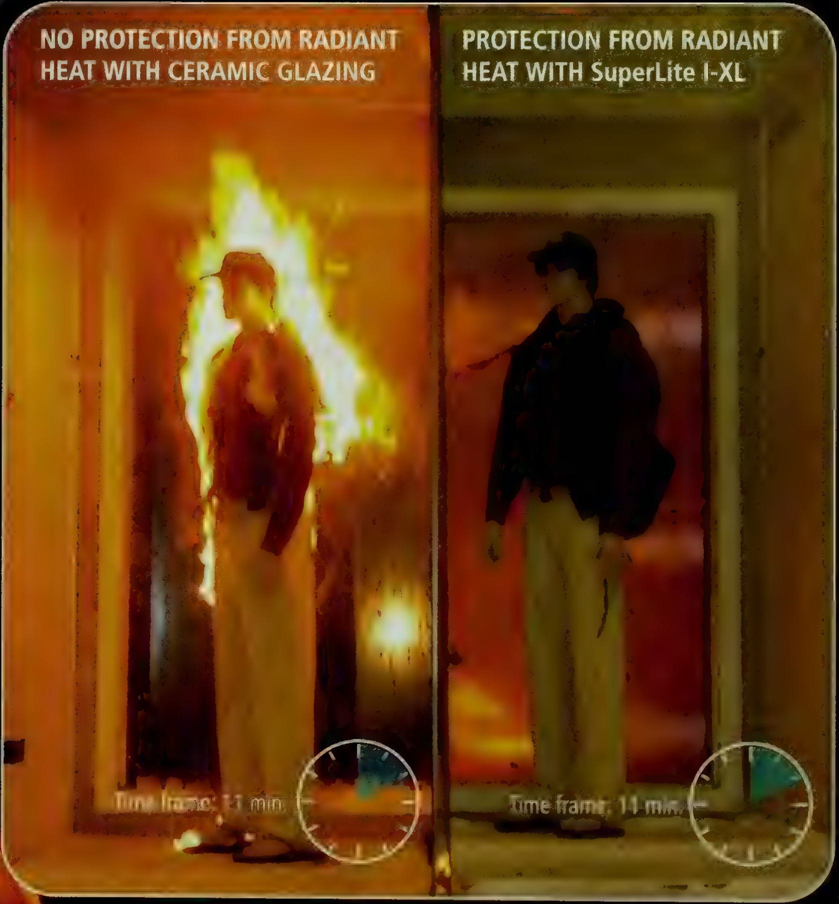
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Morgan Library and Museum © Michael Denancé

Baptist Medical Center © George Nikolajevich

Project Portfolio

Clearly, the North American continent has become more of a cultural crossroads than an insular village center, as sophisticated architectural projects regularly engage designers from outside our borders. As these five projects demonstrate, "American" architecture today represents a dynamic interpretation of tradition and an evolution of vernacular architectural language.

Building Types Studies: Health Care

Big is back in health care, and architects are reinventing big hospitals with consideration for patient outcomes and staff satisfaction. As these projects prove, clients value buildings that offer access to exterior views and daylight, encourage sociable staff exchanges, and are easy to navigate between departments and public areas.

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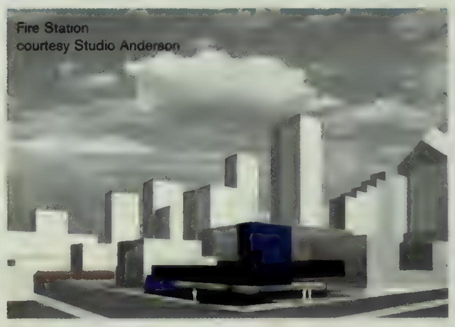
Residential Section: Elongated Houses

Long and narrow houses ventilate well, maximize views of scenery, and provide easy circulation. This month's special residential section celebrates rectangular-shaped homes. Also, check out our Web-exclusive House of the Month for a taste of a home that finds the perfect happy medium between nostalgia and modernity.

Rankin Creek House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Archrecord2

Aaron Anderson of San Diego-based Studio Anderson takes a love of storytelling and a background of film enthusiasm into his practice, and comes up with some very revealing designs. Also, see how a group of students came together to design a New York City restaurant's rainwater collection system.

Continuing Education Opportunities

Sleuthing the mundane and the catastrophic, forensic architects and engineers employ investigative techniques not to point fingers, but to find the root cause and recommend solutions for problems that plague buildings. Read this article a others at archrecord.com/resources/conteduc/ for health, safety, and welfare credit.

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Building Community

Editorial

By Robert Ivy, FAIA

Community. Building community. Those buzzwords are flowing through the halls of corporate America with the ubiquity of the latest flavor of Starbucks. Architects seem to have already forged the bond: By virtually any standard, we form a tight-knit community. We have a language in common (who continually refers to "space" the way we do?). Our education bears striking similarities, including the design laboratory and the juried system of critique. As we progress in our careers, our bank of experiences may vary in scope or scale, yet the commonalities outweigh the differences. We even dress alike. So why do we need or want to build community even further?

The ways we already share this common culture seem well established: Hardly a week passes without another professional panel or symposium, whether held formally through the local chapter of the AIA or as sponsored by the universities or the civic arts organizations. We drink in the latest ideas, and share means and methods with remarkable freedom. Publications like this one expand the dialogue, offering points of view on the best books to read or the exhibitions not to miss. If you want to be a real architect, down to the round glasses, the opportunities for development surround you wherever you live.

Enter the digital age. While the architectural culture has remained fairly intact for more than one hundred years, the advent of cyberspace and the free flow of electronic systems has radicalized our world, cracking it open like an egg. No longer bound by place, we are expanding our practices literally around the globe, at the same time that opportunities for sharing information have exploded. In parallel with the development of new software tools and the rolling out of the digital highway has come the concomitant need for information—we have become learners, whatever our age or station within the practice, as well as talkers to clients and to each other.

Even the language is changing. In the past, the individual experts and consultants we worked with, including our partnering engineers and other consultants, spoke their own lingo; now the nature of design demands a lingua franca, in which every team member can point to the same basic data, perform its own calculations, and bring its own experience to the evolving project, while contributing to a cohesive, comprehensive whole. Organizations such as the International Alliance for Interoperability have reached out to all those who are engaged in the construction process, seeking common ground. Today, building information modeling carries this idea to a kind of logical conclusion, in which all attributes of a project are represented in three-dimensions. Powerful software is bringing this expectation to reality.

Such a global explosion, and such a need for knowledge, demands more intense communication. In the next months, ARCHITECTURAL RECORD *and McGraw-Hill Construction will be introducing tools that will allow our communities of architects and others in the professional design world to reach out to each other through the Web. Initially, you should look for two forums—one concerned with building information modeling, and the second with sustainability. Everyone should have an opinion or a lesson to share. Following these early opportunities, we will offer places for you to reach out more effectively than you have in the past, when you were limited to the occasional letter to the editor, or a rant at a chapter meeting. Instead, you will find ways to contribute to the body of knowledge, share best practices, give your opinions on works of architecture, and establish your own design persona more effectively in a new digital space. Look for the announcements as they roll out throughout the year.*

Ultimately, you will become as vital a contributor to ARCHITECTURAL RECORD, *and to the community of architecture, as our professional writers (whom we trust you will continue to read). Now the medium will be in everyone's hands. And this publication, rather than responding to our community, will be connecting the world of architects by giving it the spark to grow.*

Robert Ivy

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Letters

Man and nature

Your August 2006 "Green by Design" issue contained a review of James Steele's latest book, *Ecological Architecture: A Critical History*, that ended with quoting a phrase from him: "… the final distancing from nature is under way." As an architect who has been trying, with little success, to encourage and instill environmental design for over 30 years, it is a sad moment, indeed, when I have to agree with Mr. Steele. Sadder still is my firm belief that man is signing his own warrant for self-destruction. I have witnessed my world dissolving before me my entire life, and architects—generally puppets of the money people and society at large—are a big part of this dissolution. Even so, the final say on what goes onto the canvas is in the hands of the artist—the architect. We, as architects, have failed both man and nature to this point in man's evolution (devolution?). Can we save ourselves from this "global debacle" we have created? I sincerely doubt we will be able to change our ways in time to reverse the "distancing from nature" that is seemingly speeding up in our techno world.

On a related note, your August issue had many positive articles on the greening of our thought processes. However, this process is not a "once-a-year thing." It is a lifestyle and a living process that works with nature in everything we do. Until we totally rework our life's thoughts and styles, our decline will steadily and rapidly continue.

—Gary Barr
Las Vegas

Alarming, not charming

As a graduate of Tulane, class of 1976, and a former resident of New Orleans, the results of ARCHITECTURAL RECORD and Tulane's High Density on the High Ground and New Orleans Prototype House competitions disappointed me [June 2006, page 112]. None of the winning projects capture the charm of applied ornament, which is but one very visible example of the subtle playfulness of embellishments that makes this city's architecture so pleasing. The solutions all appear rather socialist, more suited to the elites of Europe's trendsetters than the relaxed and almost tropical New Orleans.

This banal "less is more" approach to design is neither needed nor desired in the New Orleans of today or in the future city. Tulane can do far better and should.

—John Powell
Via e-mail

Poetic space

We would like to clarify some points made in John Gendall's article about the renovation of Alvar Aalto's Woodberry Poetry Room at Harvard [August 2006, Record News, "Controversy over plans to renovate Aalto interior," page 28], that we feel can too easily lead to a misinterpretation of our intent. First, we note that the adaptations described to the phonograph consoles yield no damage to the original fabric; the original pieces are left intact and fitted with two-part tables that are pressure fitted with no fasteners, and can easily be removed if desired. They are being adapted to allow the students to listen to poetry in a wider variety of media and to facilitate the use of laptop computers at these locations.

We also note that the statement concerning Aalto's attitude against "freezing the room in a historic moment" is taken out of context—it refers to conversations that I have had with various Aalto scholars over the years who suggest that Aalto was "unsentimental" about retaining the pure original character of his work, and that he believed that design should remain flexible to accommodate necessary change. It is not meant to suggest that we are using this knowledge as a license to take a cavalier attitude toward an important work of interior architecture. We thoroughly researched the available archival material, and have tried wherever possible to conserve original fabric and to treat the room with due respect while accommodating the present needs of its users. Most of the room is remaining intact—we note that it will look the same as it does in the photograph that accompanies the article (except for the side chairs in this picture, which are not Aalto pieces) once the renovation is complete.

—David N. Fixler, AIA
Einhorn Yaffee Prescott
Architecture & Engineering
Boston

Renovation concerns

The Woodberry Poetry Room in Lamont Library at Harvard University, which you covered in a recent news item, reopened in early September. Despite the international protest, the library went ahead with its renovation plans. The result is evidence that our concerns were valid. At least half of the room is no longer recognizable as an Aalto design. Seating was removed, or replaced by chairs and seating with no resemblance to the original. The lighting plan was altered, and original record consoles were converted into study carrels.

The original manufacturer, Artek, offered to repair, remake, and replace all of the interiors and furnishings. At least 60 drawings of the original room exist, proving that Aalto designed the room in its entirety and in detail. Due to Artek's continued existence and ample archival material, in addition to the small size of the room, it would have been so easy to do it right. Instead, the result is an ill-conceived intervention.

The library and its architect maintain that the process is reversible to meet the preservation standard. If that is true, modification must be made immediately to correct the serious mistake being made and restore the room as closely as possible to the original design of Alvar Aalto.

—Toshiko Mori, FAIA
Professor in Practice and Chair
Department of Architecture
Graduate School of Design
Harvard University

Where is the justice?

I am writing to respond to Raphael Sperry's letter to the editor concerning Richard Rogers's involvement with both the Javits Center expansion and his association with a political organization [RECORD, June 2006, page 31]. What I find astonishing is the naïvité of Mr. Sperry, who called Rogers's dissociation from Architects and Planners for Justice in Palestine an "embarrassment" and a "powerful blow to the profession of architecture." Politics, personal associations, and other subjective factors have always dete mined the selection of architects and other professionals. Regardless of where Mr. Sperry was born, voter and taxpayers in New York have a right to make any choice they wish without Mr. Sperry's blessings.

While I share Mr. Sperry's concern for the plight of innocent Palestinians, I hope he is also concerned about the welfare of innocent Israeli civilians who are not safe to frequent pizza shops and nightclubs due to terrorist bombings by Palestinians.

—David Werber
New York City

Write to rivy@mcgraw-hill.com.

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Record News

Highlights
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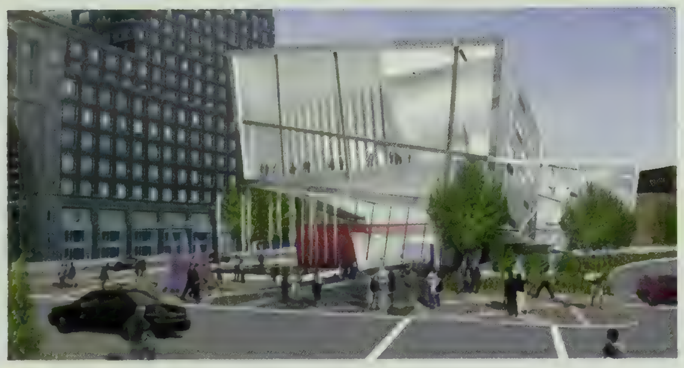
p.32 **Florida Southern does the Wright thing**
p.36 **A new Gehry Guggenheim**
p.38 **Moynihan Station complex stalled**

Big Dig snafu delays Boston Greenway projects



The Safdie-designed Boston Museum (left) and Libeskind's New Center for Arts and Culture (above) are both Greenway projects.

Engineering and safety concerns threaten to slow the surface development that will cap Boston's 15-year, $15 billion Central Artery/Third Harbor Tunnel project.

The Rose Fitzgerald Kennedy Greenway, the 27-acre crescent freed by the Big Dig with the removal of the elevated portion of Interstate 93, is zoned for parks, civic structures, and private development. But the complex engineering required to build over the tunnel is a major hurdle, particularly in the aftermath of July's ceiling collapse in the Interstate 90 connector tunnel. Repair work, an engineering review of the Big Dig tunnels, and a reassessment of the Greenway could lead to further changes and delays.

Safety concerns and politics delayed the development agreement for the first major Greenway project, the New Center for Arts and Culture, designed by Daniel Libeskind, FAIA.

With the development agreement in hand, the developer would need six months to assess "all the things necessary to construct our building on that site," says New Center chairman, developer Ronald Druker. "We don't know what we're building on."

Building on such extensive and varied underground structures will test designers and puts the onus on Big Dig officials to relay mountains of engineering data to developers.

To support above-ground structures, tunnels need an additional load capacity of about 150 pounds per square foot per floor, plus bracing for wind and seismic loads, says James Lambrechts, professor of civil engineering at Wentworth Institute of Technology in Boston. As-built drawings, concrete core samples, and ultrasonic readings can provide critical information, such as the spacing and size of rebar, he adds.

"We've never built over anything that complex," says architect Moshe Safdie, FAIA, whose firm is handling the $90 million Boston Museum project tentatively slated to open in 2012. "The existing [tunnel] structure has been designed to take certain loads, and there are two major exits right under our building."

The $4.5 million Harbor Islands Gateway Pavilion, which is expected to open in 2009, has a proposed grade just 3 feet above the Central Artery tunnel, according to designer Stephen Yablon. "We proposed a lightweight glass box for an even distribution of the load and explored a waffle slab," he says. "We're going to do some as-built probes. We have all the construction documents, but was it actually built at that height?"

This summer, Governor Mitt Romney appointed a new chairman of the Massachusetts Turnpike Authority, which oversees the Big Dig and controls the Greenway real estate. The move effectively realigned the agency with the Massachusetts Highway Department, which as of press time was still grappling with tunnel closures and repairs and had yet to fully address the engineering of above-ground projects, according to spokesman Jon Carlisle.
Ted Smalley Bowen

Beyer Blinder Belle cofounder Richard L. Blinder dies at 71

Richard L. Blinder, FAIA, founding partner of Beyer Blinder Belle and a champion of historic preservation, died on September 7 in Shanghai. He was 71.

As design director of the firm's Beijing office, Blinder was visiting China for the competition for the Shanghai Cultural Plaza. John H. Beyer, FAIA, says that Blinder was "dedicated and completely focused on his work in China. He was just beginning to realize what his architecture could be—he was at the pinnacle of his career."

Blinder's major works include the renovation of New York City's Grand Central Station, the Rubin Museum of Art, the Japan Society, and the Hilton Theatre. According to John Belle, FAIA, Blinder was inspired by social concern, service to the performing arts, and Asian culture.

Blinder was elected to the College of Fellows in 1979 and received numerous awards, such as the AIA New York Chapter's Medal of Honor in 1991. A New Yorker, he was closely involved with many community and nonprofit organizations. In 1989, he founded the James Marston Fitch Charitable Trust, which gives grants to American historic preservation projects. *John Gendall*

With the help of Architecture for Humanity, Biloxi families to choose new homes

For three hours on a Saturday in August, several hundred residents of East Biloxi, Mississippi, visited the local Salvation Army, where, in an air-conditioned tent, Architecture for Humanity (AFH) had created its own version of a science fair. Twelve architecture firms had arranged maquettes and drawings of sustainable, code-compliant homes that could replace what Hurricane Katrina destroyed. And for select families in attendance, five of those concepts will become reality.

The fair marked the second stage of AFH's Model Home program, in which the nonprofit group and a partner community development corporation will build new residences for hurricane victims.

AFH initially solicited house designs from local and national architects, including MC2 Architects, CP+D Workshop, Gulf Coast Community Design Studio, Huff + Gooden Architects, Building Studio, Studio Gang Architects, Brett Zamore Design, Rockhill and Associates, Guild Hardy Architects, Marlon Blackwell Architect, PHATT Collaborative, and JBHM Architects.

Two of the AFH-commissioned house concepts include designs by Studio Gang (above) and MC2 Architects (left).

Next came the weekend "House Fair," where the public could see the projects and meet the architects. While community members got an education about green design, new building codes, and the potential of architecture, five prescreened families selected the designs that appealed to them most. "We wanted the public to be able to come in and ask questions to let them take the lead," says Kate Stohr, cofounde and director of domestic programs for AFH.

Of the entries, Stohr says, "At first we thought the designs might be too out-of-the-box, but the architects and the clients really connected on a one-on-one level, so the designs were really embraced by the clients." Although case managers are still finalizing the clients' eligibility, construction c their five choices is set to begin thi winter and will be funded by forgivable loans. Stohr says she hopes t realize some of the other plans at later date. *Alan G. Brake*

High-profile New Orleans competition names winner

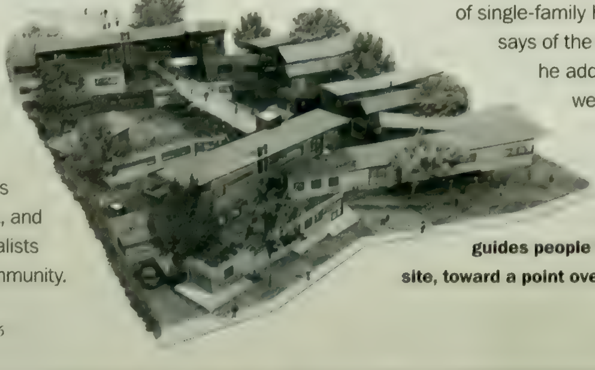
It pays to listen. Workshop/apd principals Matthew Berman, Assoc. AIA, and Andrew Kotchen, Assoc. AIA, attribute their win in the Sustainable Design Competition for New Orleans, announced August 31, to insights they gathered from locals.

The competition, cosponsored by actor Brad Pitt and the nonprofit Global Green USA, invited designers to propose a building complex with a 12-unit multifamily building, six town houses, and community and day-care centers for a 1.5-acre site in the Holy Cross neighborhood of the Lower Ninth Ward. More than 160 designers submitted proposals, and on July 17, six finalists were chosen to proceed through the competition's second phase.

Before deliberations by the jury—members of which included Pitt as well as architects Marion Weiss, AIA, and Thom Mayne, FAIA—the finalists met with the Holy Cross community. Meeting in a neighborhood church, the teams were directed to take residents' comments into account as they prepared final submissions. "The community at large initially was against anything outside their vernacular," Berman recalls. Over the course of dialogue, though, "the more we and the other finalists talked about the need for change, and not recreating an older language, the more open they were."

Workshop/apd adapted its entry, called Greenola, to popular perceptions, too. "Our design evolved from the first phase to the second phase fairly dramatically in its aesthetic," Kotchen says. Unique vegetative screens and stylish horizontal-fin scrims were made less prominent, and roofs with deep overhangs were added to acknowledge traditional methods of passive cooling. "We felt it was our responsibility to look into the historic context a little more, and try to respect some of the key elements. We reinterpreted that in a more modern way."

Underlying principles, such as the slender, shotgun-inspired massing and modular construction, persisted. "You don't sense a large, inpenetrable building, or even a wall of single-family houses," Berman says of the elements, which, he adds, were crucial for welcoming the community to use the site.



A "land bridge" guides people through Greenola's site, toward a point overlooking the levee.

Matt Petersen, president of Global Green USA, adds that the tack ensured "that each single-family home had commonality but weren' cookie-cutter," a heterogeneity the jurors praised. To encourage furthe movement through the site, the architects devised a farmers' mark as well as a unique, elevated walkway that terminates at the levee.

As per contest rules, Greenola is also a showcase for sustainabilit Photovoltaic panels produce 10 percent excess electricity; cisterns collect rainwater for toilets and irrig tion; vegetative screens reduce hea gain and purify air; exteriors are co posed of recycled wood and plastic

Global Green USA will buy the site with the help of a recent $100,000 donation from Trizec Properties. Petersen estimates th construction, which will start in January, will cost approximately $6 million. His group will work wi nonprofit partners to develop and operate the buildings. *David Sok*

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Florida Southern College begins large-scale restoration of Wright campus

Frank Lloyd Wright classics are a mainstay at Florida Southern College. Twelve structures stand at this largest single-site collection of his works. Although their geometrical exteriors dazzle with colored glass, and daylight floods their interiors, budget restrictions have caused the historic buildings to lose their luster.

Now, Florida Southern president Ann Kerr is leading the charge to restore Wright's designs, and even complete some plans the college couldn't afford to implement during the school's construction from 1939 to 1958.

"One of the most wonderful aspects of Wright's work is his use of indigenous materials. Here, he used sandstone and coquina shells to create cement blocks to build the facilities, but these porous materials resulted in water damage," Kerr explains. The bricks have been maligned by a slapdash caulking job. Modern adaptations, such as air-conditioning and extra bathroom facilities, have been rudely retrofitted atop building shells.

Restoring the facilities to endure Florida's harsh weather and introducing amenities without destroying Wright's aesthetics are two key challenges outlined in the master plan to restore the buildings and landscape. The Getty Foundation has given the school a $195,000 Campus Heritage Grant to complete that outline. Kerr has said that the restoration itself may cost $50 million.

Government and foundation grants and private gifts will fund work once the scope is determined. The college has already received $1.6 million from the state of Florida to restore Wright's esplanades, and $700,000 in public and private funds to restore the Water Dome. The esplanades, a 1.5-mile network of partly covered concrete walkways that resemble abstract trees, are cracked with sagging roofs, and the iron supports are rusted. The Water Dome, designed as a centerpiece of the campus in 1948, was originally supposed to shoot water 75 feet into the air to form a hemispherical, 160-foot-diameter dome; anecdotal evidence suggests the feature never operated properly for long periods.

The challenge is balancing Wright's design with recent building codes and technologies, says Jeff Baker, a preservation architect hired to help restore the two elements. "Wright was often ahead of the technologies of the day. Fifty years later, the technologies, materials, and systems are catching up to him."

For the esplanades, for example, new expansion joints will "mimic Wright's expansion joints in appearance but will outperform the original materials and assemblies," while the original surface color will be restored. With the Water Dome, Baker and two companies are using computer modeling and mock-ups to prepare the jets to flow properly.

While Florida Southern College is restoring Wright-designed structure like the esplanades (left), it has als commissioned new buildings from Robert A.M. Stern, FAIA (above).

Florida Southern is also invest ing $10 million to hire Robert A.M. Stern, FAIA, to design new building that complement Wright's original designs. Stern has said that the buildings, which include a series o three dormitories that are Y-shape plan, will honor Wright's intentions.

Response to the pending ove haul has been overwhelmingly positive. Jose Gelabert-Navia, man aging director of the Miami office Perkins+Will, says restoration of Florida Southern "gives us an idea of what Wright would have envisioned if he had a chance to desig a sustainable city. His ideas are worth preserving." *Jennifer LeCla*

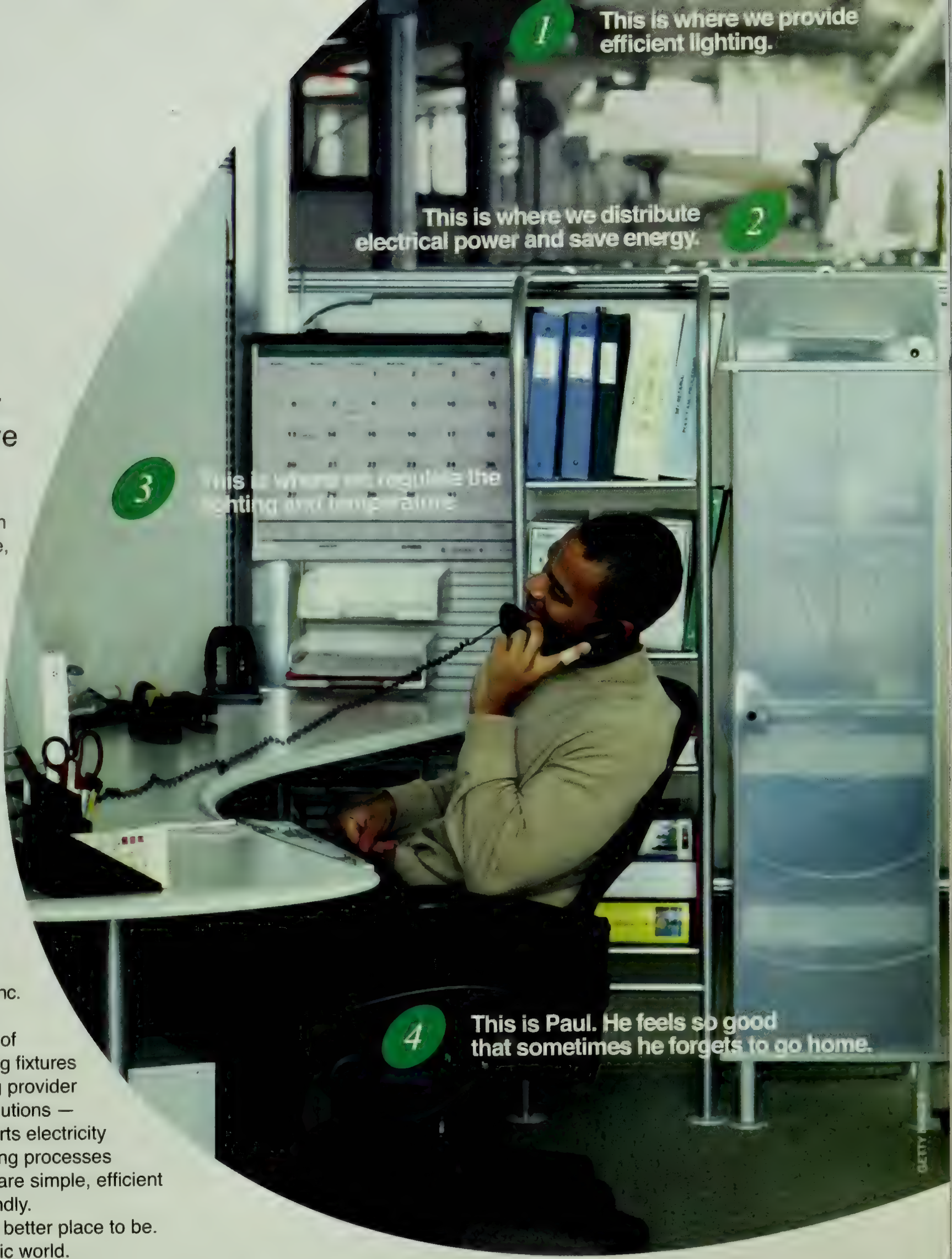
Sullivan-designed department store to be converted

Bon-Ton Stores, the department store operator that owns Carson Pirie Scott, announced in late August that Carson's will vacate its flagship Chicago store in the landmark building on State Street designed by Louis Sullivan (whose 150th birthday was celebrated in the city last month). The move, scheduled for March 2007, is blamed on increasing operating costs and changing shopper habits.

Originally named the Schlesinger and Mayer Department Store, Carson's has been the only tenant in the building, which is considered to be one of the most important works of early Modern architecture. The Sullivan design is noted for its modular construction, "Chicago windows," and cast-iron ornament. It was built between 1899 and 1904 and expanded by Daniel Burnham in 1905 to 1906 and Holabird & Root in 1960.

The building's owner, Joseph Freed and Associates, is planning to court new retailers for the lower two floors and office users above. "All of the historic elements will be maintained, preserved, and utilized, including stairwells as well as the columns and capitals," says Paul Fitzpatrick, managing director in the developer's Chicago office. "The limited number of entrances dictates the redevelopment scheme We're currently evaluating many tenant options."

The Carson's move is another sign of the ever-changing characte of State Street, where the nearby Marshall Field's flagship became a Macy's in early September. Once t thriving retail heart of the Loop, St Street suffered as a forlorn pedestrian-only thoroughfare beginning i the 1970s. It owes its renaissance this past decade to an urban desig plan by Skidmore, Owings & Merri and an infusion of new retailers. *John E. Czarnecki, Assoc. AIA*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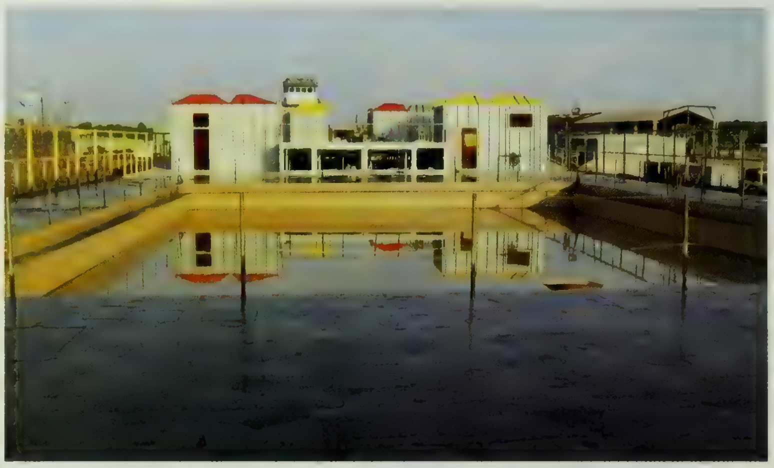
Floating pool to be reintroduced to New York waterfront

In New York in the early 1900s and again in the 1930s, floating swimming pools made of wooden slats dotted the riverfront where tenement residents bathed. A next-generation floating pool, suited for more recreational purposes and reconstituted from a steel fishing barge, will open next year.

The project began seven years ago under Anne Buttenwieser, who founded the Neptune Foundation to build these public amenities as an antidote to the city's shortage of swimming facilities. In collaboration with the Department of Parks and Recreation, she commissioned architect Jonathan Kirschenfeld to design the pool as a migrating pier that docks at different underserved locations along the East River each summer. The Floating Pool Lady, formerly the barge The New Orleans, is slated to open at a not-yet-disclosed site in 2007 and will move to Greenpoint's new 16-acre park when it opens in the summer of 2008 or 2009.

The swimming pool includes seven 25-meter lanes; its floor is made out of the original steel floor of the fishing barge, and the sides have been reinforced with new sheets of steel. The barge is more than three times wider than the poo it contains. "I was not just designing a pool, but a public park space," Kirschenfeld says. With electrical, water, and waste systems, the barge also features a raised court and dining terrace, as well as locker rooms, showers, and a snack ba

Steel work refurbishment was completed in Louisiana this Septembe Buttenwieser now is searching for a winter home for the barge before a tugboat escorts it to the East River this March, she says, adding that she hopes the project will have a permanent warm-climate winter home to guarantee continual use. *Dianna Dilworth*



The reconstituted barge is a self-contained public park, featuring a swimming pool, changing pavilions, and zones for socializing.

Hariri sisters take Salzburg

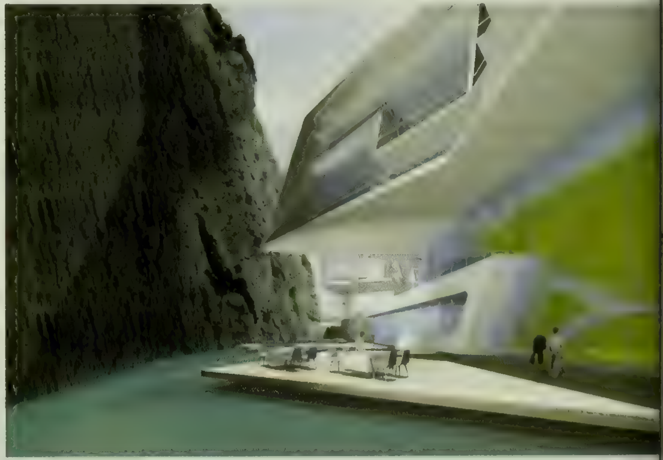
Residents of Salzburg, Austria, birthplace of Mozart, will soon experience a harmonious composition of a different sort: a cutting-edge architectural addition from Hariri & Hariri. In August, the New York–based firm won the commission for a mixed-use urban development in an invited competition. The project will rise on the former site of Salzburg's Stern Brewery and create approximately 100 mixed-income housing units, facilities for a postgraduate school, and a large gallery. The jury unanimously praised the design's "clear urbanistic tenor" and its integration of new and old structures.

Where other proposals called for tall towers, the winning design spreads a cluster of angular buildings, none more than eight stories tall, over the 5-acre, hourglass-shaped site. "Scale was a major issue because the city is already so dense and has a scale of its own," says Gisue Hariri, who founded the firm with her sister Mojgan. "It's very different from most of the larger cities we know."

Rainberg Mountain hems in one side of the site with a vertical rock face. Inspired by the quarrying that took place there, the Hariris placed rectangular volumes around a shared garden that are reminiscent of stacked blocks of stone. "We proposed blocks that looked like they were chiseled from the rock face, which gave us the opportunity to form each one differently," says Gisue. "Even though it may look a bit random, the planning of each one was done very carefully in terms of location and angle to take advantage of views and light."

A new canal will be cut between the mountain and the site, with a public promenade snaking along its route. The upper floors of the buildings are designed to cantilever over the footpath to preserve privacy for apartment dwellers and create dramatic spaces at grade for a spa and restaurant.

On the eastern section of the site, an existing brewery building will be renovated to house classrooms and residences for the school. Behind it, sculptural skylights will pierce a grassy public square to brin sunlight deep into the old brewery's underground vaults, which will contain the House of Architecture, a gallery and lecture space to be run by Initiative Architektur Salzburg. Construction of the $57 million project is scheduled to begin in the spring of 2007. *Tim McKeough*



The Hariris' design nestles up to one jagged side of Rainberg Mountain.

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Vietnam interpretation center will give voice to memorial

Maya Lin's Vietnam Veterans Memorial represents an understanding that the war's fallen are better honored by silence than explanation. Yet this self-restraint has led the Vietnam Veterans Memorial Fund, the organization that funded and built the Memorial, to lobby for some exegesis: the Vietnam Veterans Memorial Center. Legislation authorizing the 25,000-square-foot center—which would include a collection of artifacts, an interactive exhibition, and a resource library—passed in 2003, and a site was approved in August.

"The Wall doesn't tell a story about individuals or about the larger war," says James Polshek, FAIA, the architect enlisted to design the new museum. "More than anything, that justifies the creation of this center, which is not necessarily for all of us alive today. It's for future generations and younger generations."

Although design plans have not yet been made public, the proposed structure will be placed underground between the Vietnam and Lincoln Memorials, fulfilling Congress's specifications that it wouldn't compromise the National Mall. Ralph Appelbaum Associates will be responsible for the exhibition design, and Hargreaves Associates will handle landscape.

Lin was involved with the committee that chose Polshek Partnership Architects, and she has offered her support for the project in statements. Yet the decision to build the center has prompted opposition from the National Coalition to Save Our Mall, the National Trust for Historic Preservation, and others. Critics are worried that the impact of the memorial will be lessened by the museum, and that it may inspire other groups to lobby for structures that will further crowd the Mall.

Jan C. Scruggs, founder and president of the Memorial Fund, says veterans support the plan. He also points out that Lin's memorial, though initially excoriated, is now the most visited site on the Mall, adding, "Anyone who would have quit the [original] project because someone criticized it does not have the vision. We have the vision, and we have some of the country's finest minds involved." *Jeremy Lehrer*

Louis Kahn–designed bathhouse saved

The bathhouse by Louis I. Kahn was once among the most endangered architectural sites in New Jersey. But after a half-century of deterioration, municipal officials promised in August that they would purchase and restore the historically significant structure.

The Trenton Jewish Community Center (JCC) commissioned Kahn to design its suburban headquarters in the township of Ewing in 1954. While the bulk of Kahn's master design was never built, the bathhouse was completed three years later. Made mostly of raw concrete blocks, the 6,000-square-foot building features pyramidal roofs and a cruciform layout of interlocking partitions, evoking the Brutalist style. According to architectural historian Susan Solomon, it has been hailed for melding vernacular architecture and Modernist ideas.

The bathhouse included the shower room and changing facility of the center's swimming pool until the crumbling pavilions were considered a safety hazard. The structure was nominated in 1984 to the National Register of Historic Places, but by 1997, a plan by JCC to demolish the buckling pavilions prompted the organization Preservation New Jersey to name the bathhouse to its endangered list. Mercer County, which is considering converting the bathhouse into a senior citizens' center and preserving the surrounding lands, will buy the property with Ewing Township for $8.1 million; restoration costs are expected to exceed $1 million. *Violet Law*

The bathhouse is a series of pavilions in which pyramidal roofs balance on concrete-block bases.

Abu Dhabi announces its own Gehry-designed Guggenheim

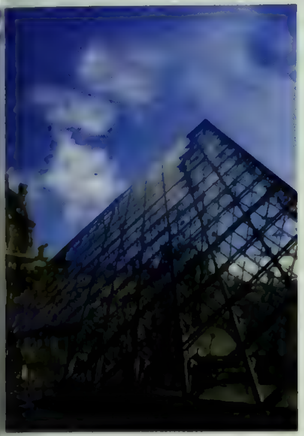
With neighboring emirate Dubai gaining global attention for luxury tourism and eye-catching architecture, Abu Dhabi, the capital of the United Arab Emirates, is aiming to use culture to engage travelers' imaginations. As part of that effort, officials are seeking to recreate the "Bilbao Effect" there: The emirate has signed deals with the Guggenheim Foundation and Frank Gehry, FAIA, to build a new branch of the Guggenheim Museum, to be designed by the architect.

While Dubai's development has been rapid and spectacular, Abu Dhabi is planning its future carefully, and envisions the Guggenheim within a larger cultural district on Saadiyat Island. This natural landmass, located 1,640 feet offshore, will also be home to national, maritime, and Classical art museums, a performing arts center, and an art park. "They are transforming themselves into a Western-oriented cultural destination," says Anthony Calnek, deputy director of communications for the Guggenheim Foundation.

Under a memorandum of understanding between the government and the Guggenheim Foundation, the emirate will build, own, and maintain the building. It will acquire its own permanent inventory of contemporary art, with Guggenheim curators programming the building and guiding acquisitions. The New York–based museum will also lend pieces from its own collections. The government has separately contracted Gehry Partners to design the building.

The project would once again unite Gehry and the foundation after a planned museum in Lower Manhattan was shelved in 2003. (Later that year, a Brazilian court blocked the Guggenheim's plans to build a satellite in Rio de Janeiro.) According to Calnek, the Abu Dhabi branch is more of a sure bet than any of the other Guggenheim projects in development because the money is coming from one source with very deep pockets, the Emir, rather than from municipal or provincial governments. *A.G.B.*

;iting airportlike onditions, Pei Cobb 'reed to renovate its .ouvre addition



/I. Pei, FAIA, has confirmed that ei Cobb Freed & Partners is eveloping a solution to manage ercrowding in the Louvre's ıtrance. Pei and museum officials greed to move forward in mid- eptember.

The New York firm completed e 70-foot-tall Pyramide du Louvre ıd 665,000-square-foot under- ound entry and concourse in 989. Pei says attendance at the uvre has increased almost 70 ercent since the popular project as completed, and now hosts 7.5 illion visitors each year.

Consequently, the public space as become crowded and noisy, and as lost much of the peaceful aura e architect originally intended. 's a real concern for me," says Pei, ho had anticipated a less dramatic mp in attendance after his "Grand uvre" project was completed. "If e don't do it, the place is going to ok like an airport."

Pei does not yet know the ecific measures his team will arry out, but he says that a resolu- on should be sympathetic to the urrounding architecture. He adds at it should also allow visitors to cess the collections despite onstruction. *Sam Lubell*

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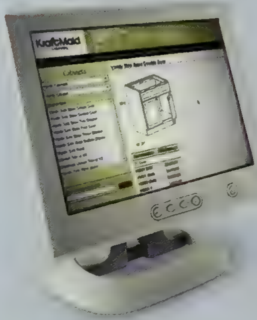

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Sheldon Silver stalls Moynihan Station proposal

The Public Authorities Control Board (PACB) rejected a $900 million redevelopment scheme for New York City's Pennsylvania Station, the nation's busiest passenger facility, on August 17.

The plan, drafted by Skidmore, Owings & Merrill, called for substantial changes to the adjacent Farley building, a McKim, Mead and White design that currently serves as the city's main post office. Reconceived as the Daniel Patrick Moynihan Station, the 300,000-square-foot transportation hub would be pierced by two immense vaulted skylights and include as much as 750,000 square feet of private, mixed-use space. New York's Empire State Development Corporation (ESDC) appointed the development companies Related and Vornado to control the commercial spaces.

To go forward, the project would have required the unanimous consent of the PACB, the body responsible for approving state-financed projects. But State Assembly Speaker Sheldon Silver, one of PACB's three voting members, refused to endorse the plan. Silver's spokesperson, Bryan Franke, says the speaker's reservations were based on a letter written by State Comptroller Alan Hevesi to the ESDC.

In his letter, Hevesi raised concerns about the adequacy of the project's financing. But Hevesi most harshly criticized the developers for not presenting the PACB with its ambitious plans to relocate Madison Square Garden across Eighth Avenue into the Farley building and to redevelop most of the block the Garden currently occupies. Hevesi's letter states, "Perhaps the most fundamental question is, how is it possible to approve part of the project when the new Madison Square Garden proposed for the western half of the complex will probably require that the whole plan be revised?"

While redeveloping the Farley building would provide the developers with 1 million square feet of air rights, winning approval to relocate Madison Square Garden would add 5 million square feet of developable space.

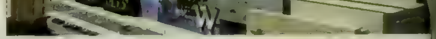
A concept that follows this recalculation envisions, in place of the current Garden, three large towers surrounding a giant skylit pedestal that would raise the ceiling of Penn Station. The developers have shown the plan to various stakeholders, but they would not share it with RECORD. Bud Perrone, a spokesperson for the developers, refused comment.

The ESDC says it will have another try with the PACB. Jessica Copen, communications director of the ESDC, adds that the corporation addressed concerns about Moynihan Station and Madison Square Garden in a recent letter to the comptroller. In June 2005, Silver had used the PACB as a vehicle to kill the New York Sports and Convention Center. *Alex Ulam*

In Las Vegas, W Hotel project favors the little guy

Lacina Heitler Architects recently won the competition to design a new $2.5 billion W Hotel, Casino and Residences in Las Vegas. It is the largest project to date for the small New York firm, which until now had been best known for designing boutique stores in Manhattan, such as Galo and Searle. It beat out Carlos Ott of Uruguay, Swiss architects Herzog & de Meuron, and the London office of HKS Architects to win the job.

The new W will be located on a 24.5-acre site just east of the strip. Plans call for two 50-story Modernist glass towers combining 4,000 hotel and condo-hotel units, plus 20 restaurants, bars, and lounges. There will be a Bliss spa, fitness center, and 75,000-square-foot casino; and Fred Segal, the Los Angeles retailer, will also open a 100,000-square-foot store. The complex is being developed by a joint venture between the Las Vegas–based investment company The Edge Group and Starwood Hotels and Resorts Worldwide.



"Lacina Heitler's design was elegant and timeless, as well as realistic to build," says Adam Frank, a development team principal. "Also, as a smaller firm, they were hungry. We would be dealing with the company principals as opposed to a large design team whose names aren't on the wall." Ground breaking is set for mid-2007, with completion anticipated by late 2009. *Tony Illia*

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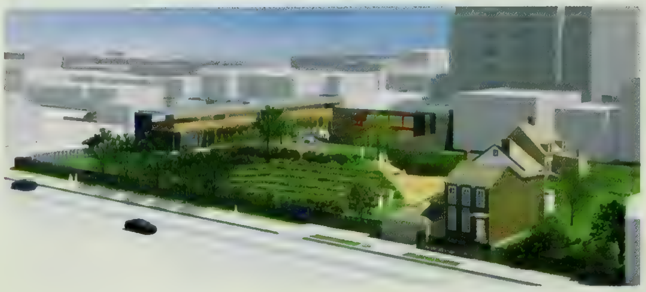
Weeksville Heritage Center by Caples Jefferson Architects



When the tenements surrounding the Weeksville Heritage Center came down, residents of Brooklyn, New York's Bedford-Stuyvesant neighborhood were "thrilled to see the center's historic houses—it was a big deal," says Sara Caples, AIA. The artifacts of a community founded by free African Americans in 1838 reminded the largely black neighborhood of its roots. Caples also notes that the resurrected vista seemed to return the houses to a more genuine agricultural context. A new, 23,000-square-foot addition designed by Caples Jefferson Architects will preserve that sensibility while providing the center with much-needed interpretation space.

The client, the Art Commission of the City of New York, favored a Modern, abstracted language. "Our challenge was not to recreate a 19th-century building, but celebrate the context and feel the magnetic draw of the houses," Caples says. The response: two low-slung volumes that kneel to the houses. The new buildings are connected by a glass breezeway so passersby can also view the historic Weeksville homes.

"We used a language that was very Modern," Caples explains, "but we were also asked specifically by the Weeksville Heritage Center to create an architecture that would include African echoes." While the tight geometries deferred to the Art Commission, patterns and textures embedded in the building surfaces pay respect to community pride. Cornrows and basket weaves subtly appear. "Even the frit is derived from Congelese fabrics," Caples says of the glazing. Similarly, green and purple Vermont slate correspond with color palettes in African and African-American art, while unpainted ipe cladding symbolizes the community's modest fortunes.

Among other references to the past, Caples Jefferson placed the building entrance asymmetrically on the 1.5-acre site, and widened it to 50 feet: The measurements correspond to the now-extinct Hunterfly Road, an important avenue in Weeksville's heyday. Meanwhile, landscape architect Elizabeth Kennedy has specified a combination of agricultural and decorative grasses for the complex's planted courtyard, which will be regularly mowed to invoke past agricultural practices. Community fruit and vegetable gardens are located behind the houses.

Construction documents are being completed. The two-year-long job will commence with a spring 2007 ground breaking. *D.S.*

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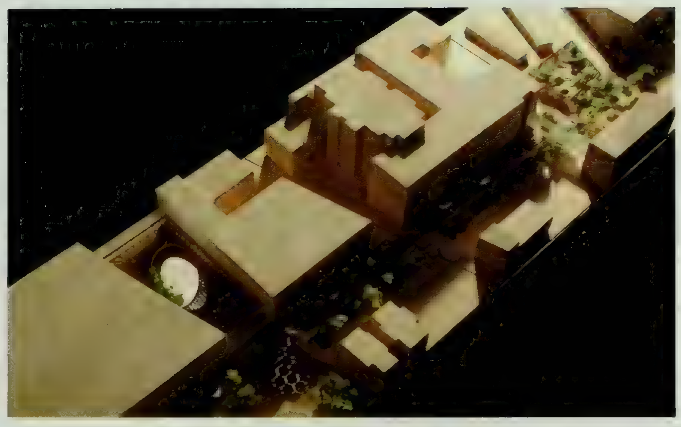
uffalo Niagara Medical Campus by nArchitects

hen the selection committee of he Buffalo Niagara Medical ampus requested proposals to edefine its 100-acre campus, most f its 70 invitees were artists. One f the few exceptions, the New York rchitecture firm nArchitects, won he commission by revealing to the ury that the site's urban design as a terminal patient.

Cofounders Eric Bunge, AIA, nd Mimi Hoang, NCARB, quickly lentified the problems burdening he series of hospital facilities: hat it lacked a campus identity, ynamic pedestrian life, and clear dges. "We spent a lot of our pres-ntation on how we thought that ublic art first needs a site," Bunge ays, calling good urban design "pub- space as public art. Interestingly, he jury totally agreed."

Schematic design is scheduled to begin shortly, with ground breaking in 2007. Work will proceed in phases. Beginning with the main thoroughfare of the campus, nArchitects will transform Ellicott Street into Ellicott Park. The narrow, linear space will host a variety of experiences and maintain "some kind of identity from south to north that is continuously recognizable—a legible spine, a legible piece of art," as Bunge puts it.



The west side of the park will be devoted to creating social vignettes. Oval benches containing raised planters as well as undulating islands will draw pedestrians' attention away from passing cars. The poured-in-place concrete seating elements will integrate lighting in order to give the appearance that they are hovering, and invite use at night. On the opposite side of the street, the architects plan to underscore the park setting by uplighting trees with more standard fixtures, for example.

Between the two zones, the architects have devised so-called "vitamin crossings," crosswalks in which luminous tiles alternate with opaque pavers in the pattern of the molecular drawings of vitamins. "It's a device so that people can walk the whole street and learn something about health and science," Bunge says. In the spirit of fun that's good for you, nArchitects has proposed quickening pulses, too. For the passages between the buildings lining Ellicott Park, the design team has imagined a skating rink and a trampoline park. *D.S.*

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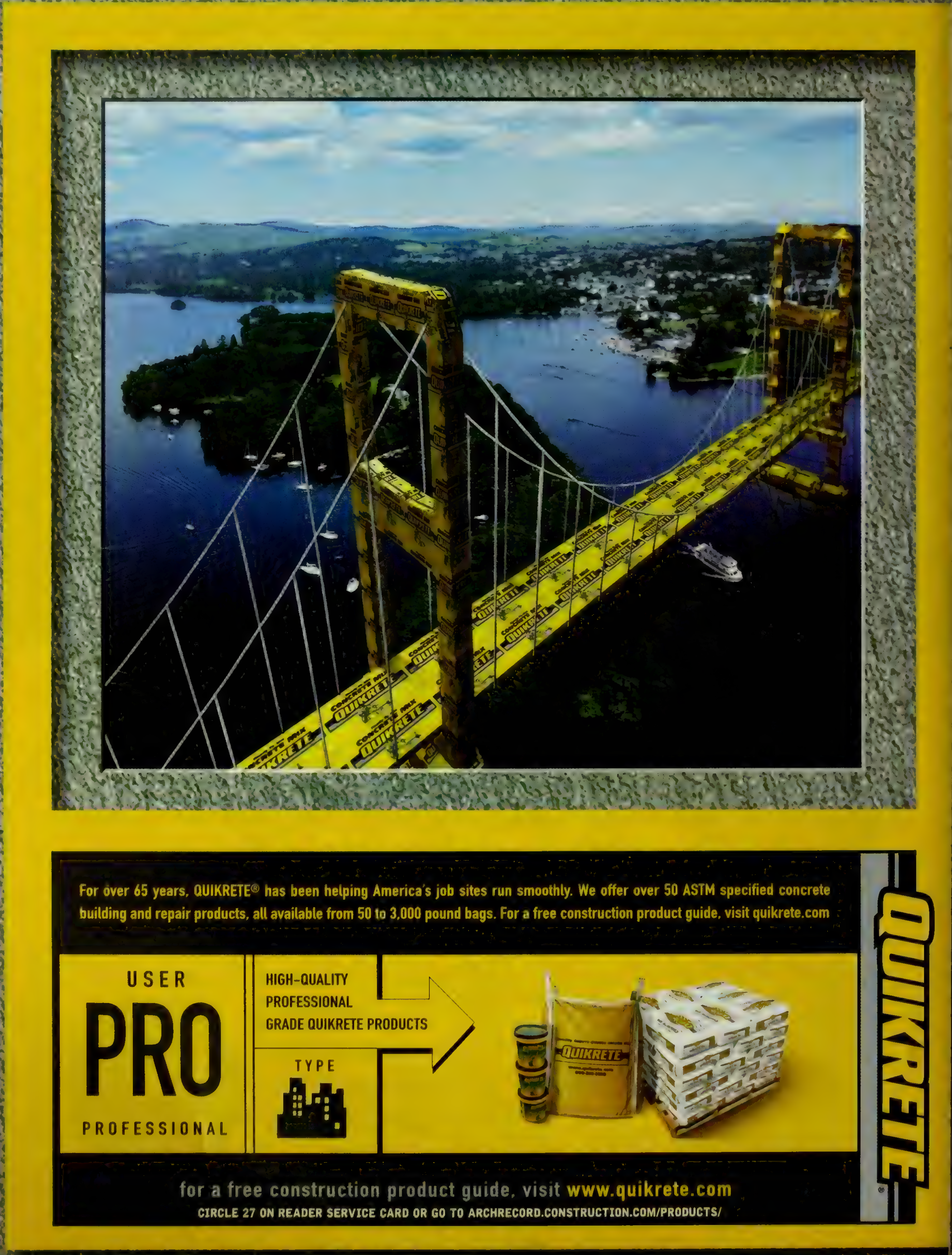

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For and about the emerging architect

archrecord2

rom the West Coast to the East Coast, architects and architecture students are finding ways to let heir clients express themselves through design. In San Diego, Aaron Anderson explores materials nd ways to disclose the underlying narrative of his projects with his clients, while USBK, a group of lew York City architecture students, comes together to help a restaurateur catch the rain. For more bout these young architects and others, go to www.archrecord.construction.com/archrecord2/.

)esign

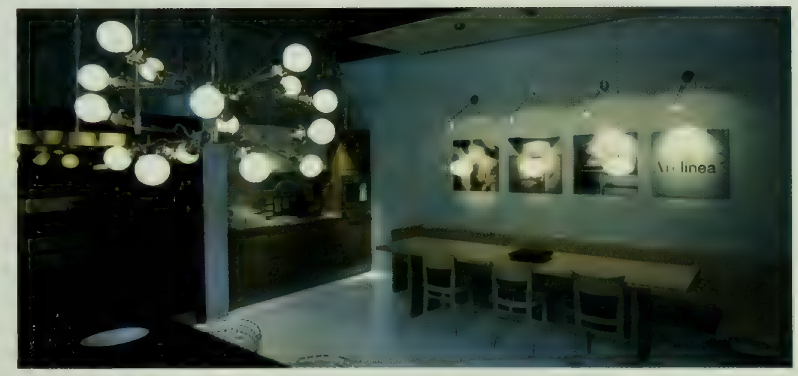
ıtudio Anderson: Turning tales into design

Aaron Anderson, principal of San Diego–based architecture firm Studio Anderson, likes telling stories. That's why he couldn't decide if he wanted to be an architect or a filmmaker. After receiving his B.Arch. from Arizona State University, he moved to L.A. to ive the film world a try. "I was so naive," he says. "After a while, I ame home to San Diego, and to architecture, with a vengeance."

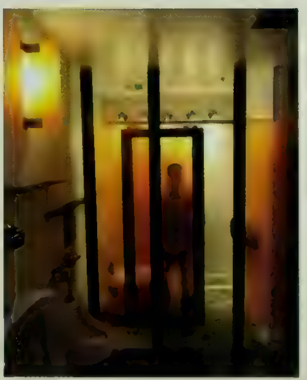
Anderson worked for a San Diego firm that specializes in enter- ainment retail design before deciding to set up his own shop. But ıen one day he walked by the office of Jennifer Luce and her firm uce et Studio [RECORD, Design Vanguard, December 2005, page 78]. thought, 'If there's anyone I'd want to work for, it's Jennifer,' " he says. Anderson alked in and got a job. Working with Luce before establishing his own firm gave im the opportunity to flex his creative muscles with such projects as the Nissan esign America corporate offices in Farmington Hills, Michigan. "One important ıing I learned from Jennifer was the love of new materials," says Anderson. She has a team of people constantly researching such things as plastics, resins, ıbber, coatings, and new techniques for cutting metal. I've taken that with me."

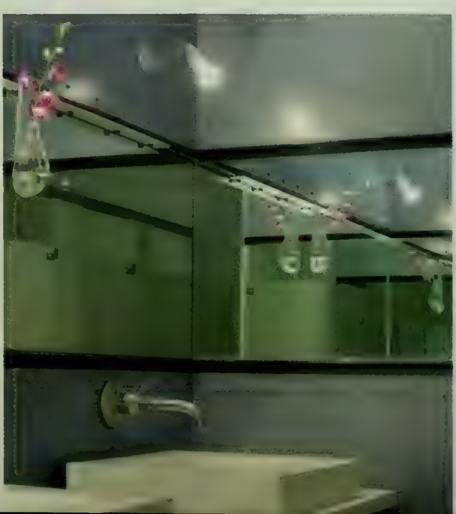
Anderson says his three-person practice has been given projects ıat he calls "little miracles"—a showroom for a high-end Italian itchen design company, a collaborative renovation for a 10,000- quare-foot restaurant in San Diego's Gaslamp District, a space dedi- ated to the serious (and soapy) business of dog washing. "City Dog is ı an area where all the old industrial buildings are being renovated," ays Anderson. "The area is an eclectic mix of artists, young profes- ionals, homeless shelters, affordable housing, and rehab centers. is so diverse that there was a lot to draw on in terms of narrative leas. The space is literally 12 inches from the trolley tracks, so there ; always a dynamic mix of people milling around the front door. That nergy definitely defined the industrial, artistic direction of the space."

Born and raised in San Diego, Anderson says he's encouraged y the new construction. "San Diego has always been a developer- ın city," he says, "but things are becoming less cookie-cutter."



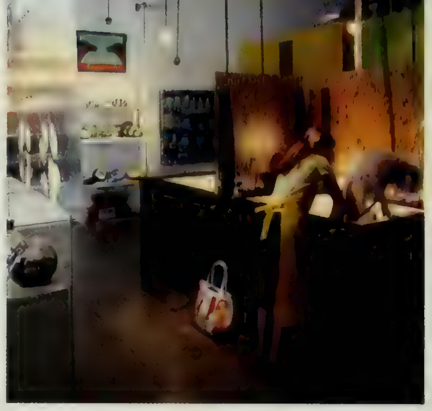
Arclinea Showroom, San Diego, 2006
Stainless steel, aluminum, gray oak veneer, acrylic, and resin were used in a spare design for this 1,400-square-foot showroom for Italian kitchen design company Arclinea.



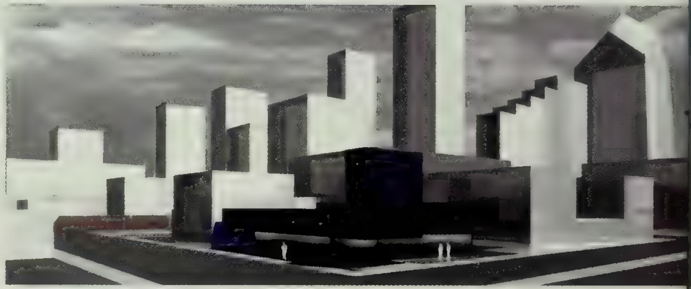


Aubergine, San Diego, 2005
Anderson used the metaphor of a man's suit (with boutonniere, left) in the design of the women's room, and resin panels and colorful lighting in the men's (above) to invert typical gender representations in the social architecture of this restaurant.

While Anderson has fewer projects in this, his second year on his own, he says they're more substantial, such as the house he's designing for San Diego dessert-maven Karen Krasne, and a potential gig in Thailand. He's also teamed up with fabricator Chris Puzio for a proposal to design a fire station in San Diego's Little Italy, a design that uses the elements of air, fire, and water as metaphor to tell a tale about the building and those who will work there. "These aren't my stories," says Anderson, "they're about the clients, or the spaces, or the purpose. Everything gets boiled down to purpose and meaning. I thought that if you wanted to connect with people and tell a story, you had to do it through film. But architecture accomplishes that too." *Ingrid Spencer*



City Dog, San Diego, 2005
Located at the edge of a light-rail station, this new, 2,000-square-foot space provides pet-washing facilities for a budding urban neighborhood. Defined by finely crafted metals and resins, the project embodies the lighthearted nature of the business and the community's progressive artisan culture.

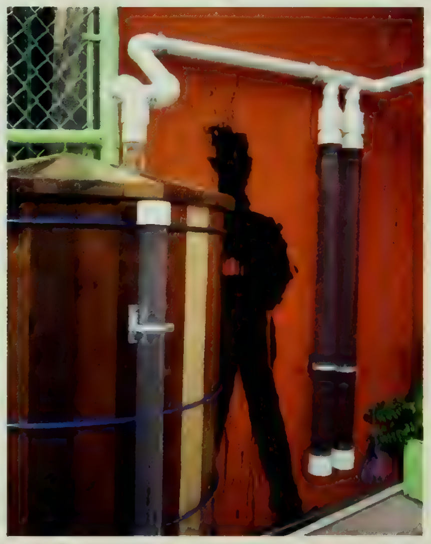


Fire Station, San Diego, unbuilt
This proposal for an ecofriendly fire station uses the elements of air, fire, and water—related to the work of firefighters—as metaphors for the design of areas for equipment, office, and living.

For more photos and projects by Studio Anderson, go to archrecord.construction.com/archrecord2/.

Work

New York City students catch rain and experience



FXFowle architect Peter Olney takes Habana Outpost's owner Sean Meenan and USBK's Dave Liatti and Lori Gibbs through N.Y.C.'s Helena building (above). Habana Outpost's rainwater-collection system (right).

Just around the corner from the Pratt Institute in Brooklyn, New York, Sean Meenan, an eco-conscious restaurateur whose Café Habana is a hit with Manhattan hipsters, opened a branch of that restaurant, Habana Outpost, in May 2006. And as a way of combining his interests in community involvement and being as green as possible, Meenan and his intern, Lori Gibbs, came up with Urban Studio Brooklyn (USBK), a design-build collective that would attempt to bring together students from all of New York City's accredited schools of architecture to build a rainwater collector that would catch the runoff from the courtyard's solar panels to water the restaurant's plants.

Gibbs, a B.Arch. student at Pratt, brought together the student participants by contacting the various schools' career services departments. She eventually rounded up five: Chris Wu, from the New York Institute of Technology; Janet Yee, from Parsons: the New School for Design; Seth McDowell from Columbia University; and Stanislav Vinokur from Rensselaer Polytechnic.

The students spent a week and two weekends working with Meenan as their client. Yee, who had just graduated from Parsons, said that she liked the design-proposal phase of the week best. "Of course, our proposals were a lot more grandiose than we had time for," she says. Yee and Gibbs both emphasized that not all their time was spent designing or building so they got more from the program than just practical experience. They were also given the opportunity to tour a building with FXFowle Architects, and architects from several firms—including Steven Winter Associates, Atelier Ten, Thread Collective, Big Sue LLC, and Kontent Real/Design E2—volunteered to lecture to the group.

Amid an atmosphere created by late-summer sun—as well as grilled corn and frozen mojitos—the students showed off their design, aiming a hose at the solar panels. The water sluiced off, hit the gutters, and ran through PVC pipes to two clear tubes meant to flush out dirty water. Dave Liatti, the project manager, explained that the tubes caught the first couple of gallons of water on the assumption that those would be the dirtiest. Small holes in the bottoms of the flush tubes allowed the water to slowly run back into the ground. The clean water ran into the collector itself, which was designed to look like a water tower on the top of a New York apartment building. "It's not world changing, but now that it's established, maybe we can do something bigger next year," says Meenan. He's thinking a rainwater collector again—this one to flush the toilets. *Kevin Lerner*

For more information on USBK's Habana Outpost project, go to archrecord.construction.com/archrecord2/.

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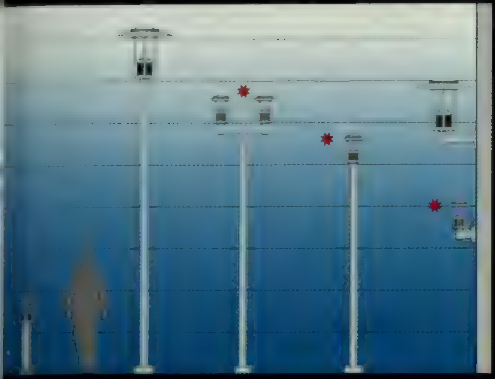

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Is Classicism the style that will not die or the habit architects can't kick?

Critique

By Martin Filler

once-unimaginable role reversal as occurred in architecture over ie past three decades. Modernism, 'iginally seen as the end of histori- al styles, now is widely considered st one more phase in the unending ansformation of the building art. lassicism, deemed defunct as the odo for many years, is now believed y some to be the true faith of archi- ecture, rightfully restored after the eresy of Modernism.

Why the resurgence of lassicism now? Its enduring, per- aps eternal, appeal is not hard to ithom. Classical revivals recur uring periods of social, political, or conomic upheaval, when the most imiliar of architectural forms offer a omforting sense of continuity. That 'as true in 18-century England at ie onset of the Industrial Revolution, nd in late-19th-century America at ie onset of our rise to world power.

Classicism can also imply order i times of chaos. During the turbu- ent 1930s, the true international tyle was the stripped Classicism avored for government buildings in litler's Germany, Roosevelt's United tates, and Stalin's Soviet Union, ften indistinguishable from one ountry to the next save for a nation- listic symbol.

The unprecedented magnitude f today's convergent world crises ays much about Classicism's resur- ence, but the ancient tradition is nore than the ultimate architectural security blanket. Classicism has won many new adherents as a result of of what might be termed "style burnout."

artin Filler is the architecture critic or House & Garden *and a longtime ontributor to* The New York Review *f* Books.

The Classical survival: Allan Greenberg's Huckleberry House, 1985 (above), and Edwin Lutyens's Viceroy's House, 1930 (right).

Architectural fashions have always changed, but never as rapidly as in the late 20th century, when Postmodernism lasted little more than a decade, and Deconstructivism even less. Since then, the wild proliferation of new architectural modes, none of which will attain the dominance of Modernism, has made some see Classicism as the best guarantee of passing the test of time.

One of the most conspicuous Classical buildings of recent years is the Schermerhorn Symphony Center in Nashville by David M. Schwarz. As Schwarz's project architect explained, "They were looking for a building that would appear timeless and not dated 10 years after opening."

Revealing its age

This notion ignores an inevitable aspect of Classicism. Far from being timeless, the style inevitably reveals its age, no matter how faithfully practitioners believe they are following earlier models. A Classical building of the mid-18th century can never be confused with another of the late 19th century. That's especially true today, although advocates will try to explain away the awkwardness of so much new Classical design as a result of the style's 50-year hiatus in architectural education.

It's not a question of improving skills, however. Buildings look the way they do to a great extent because of the way they are built. Classicists today think that if they return to traditional materials and crafts techniques they will achieve results indistinguishable from the work of their 18th-century forebears. The antiquarian obsessions of Classical fundamentalists such as British architect Quinlan Terry prove it is delusive to think that two centuries of technological change will not have an impact on any building, of any style, made in today's world.

In fact, the rejection of Classical principles in American architecture schools was never as absolute as some allege. In the 1920s, America's greatest postwar architect, Louis Kahn, studied under the Classicist Paul Philppe Cret at the Beaux-Arts-based University of Pennsylvania. Kahn's Classical streak became more pronounced as his career progressed and he tried to recapture the powerful essence of Classicism by rejecting what he considered the tradition's superficial trappings.

Back to the past

At Princeton after World War II, Robert Venturi and Charles Moore were influenced by the Beaux-Arts-trained architect Jean Labatut, who gave them the courage to expand the vocabulary of Modernism by embracing Classical concepts and expressing them more overtly than had been done in decades. Those architects' witty Classical references were hugely influential in two very different ways: They unleashed a slew of crude Postmodernist imitations and prompted a return to the methodical reinvestigation of the real Classical thing.

One influential early activist was Henry Hope Reed, who in 1968 founded Classical America, the advocacy group that republished out-of-print Classicist texts and established the Arthur Ross Award to encourage Classically minded practitioners, pedagogues, and patrons. That prize has since been eclipsed by the Richard Dreihaus Award, set up in 2003 as the Classicist parallel to the Pritzker Prize, with a $100,000 purse signifying higher stakes. At the same time, the burgeoning New Urbanism movement gives further credibility to the American Classical tradition.

Useful as publicity can be to a cause, Classicism would have continued to languish without its reestablishment in academia. A decisive turning point came in 1989, when a dedicated Classical revivalist, architect Thomas Gordon Smith, became dean of the architecture program at the University of Notre Dame, in Indiana. Though Notre Dame students are expected to master the polished draftsmanship that typified Beaux-Arts training, they also use computers in the design studio, if less so than their contemporaries elsewhere.

The other major center for Classical architectural education in America today is the University of Miami School of Architecture, whose dean, Elizabeth Plater-Zyberk, runs a thriving private practice and is—with her husband and partner Andres Duany—one of the central figures in the New Urbanism movement. There seems to be less emphasis on pure Classical form at Miami than at Notre Dame, but there is no lack of tradition at either school, whether Mediterranean references that play so well in the Sun Belt, or American Classical reminiscences that make New Urbanism attractive to so many.

Books don't necessarily help

Has the return of formal education in Classical architecture improved the quality of traditional design? A flood of new books celebrating the new Classicism—many brought out by Rizzoli under the editorship of David Morton, whose efforts were recognized with a $25,000 Dreihaus Award earlier this year—testifies to the subject's profitability at a time when most publishers are slashing their architecture lists. Yet the buildings depicted in these glossy volumes do not raise hopes that a new Golden Age of Classicism is upon us.

True, few of the works shown in these books are by architects versed in the full Classical curriculum now offered at Notre Dame and Miami. Yet long before the establishment of formal architecture schools in the mid-19th century (excepting the 17th-century Ecole des Beaux-Arts), most Classicists were self-taught through pattern books and few saw ancient examples they could emulate. So how did they create designs so superior to most Classicism today?

Along still-unspoiled back roads in New Hampshire and Virginia, you can drive for miles and see not one bad building in the American Classical vernacular, which began to flourish in the mid-18th century and persisted in some places until the early 20th century. Now you can drive through expensive neighborhoods throughout America and can find scarcely a Classically inspired building that gets it right.

The design-build model

One reason for the disconnect is that architectural design and construction are no longer the inseparable activities they had been before industrialization, mass production, and prefabrication altered things irrevocably. The recent proliferation of design-build firms in America nonetheless pales in comparison to prevailing practice in Japan, where project managers for construction firms are qualified architects who improvise and adjust specifications and detailing on-site with an expertise and authority unheard of in this country. Although some new American traditionalists (particularly residential specialists) cultivate artisanal teams they can carry from job to job, the far-flung legions of workmen who understood the Classical vocabulary as if by osmosis no longer exist.

Educators always say there are things that can be taught and others that cannot, and among the latter is an innate sense of proportion, the soul of Classicism. Although there are many proportional formulae that can be applied to creating a Classical design, an architect must combine a head for numbers with an eye for beauty.

I have never doubted that the Classical tradition can be given new life if handled with the learnin and daring shared by its greatest exponents over the past 200 years The incomparable trio of early-19th-century Classicists—Thomas Jefferson, Sir John Soane, and Karl Friedrich Schinkel—designed buildings that made Classicism contemporary in ways it had not been for centuries.

The last Classical hero

Their only true modern-day successor was Sir Edwin Lutyens, who, after specializing in scenographic country houses, somehow evolved into a Classical master equal to the finest of any age. The greatest Classical public building—perhaps the greatest public building, period—of the 20th century was Lutyens's Viceroy's House in New Delhi. Purists may sniff at its freewheeling blend of Mogul and Western motifs, but Lutyens's multicultural masala is incontestably Classical by any plausible definition and not only because of its bilatera symmetry, endless colonnades, and panoply of arches. Lutyens's astounding sequence of perfectly proportioned indoor and outdoor spaces leads visitors through a procession of such drama and surprise that the typical Beaux-Arts *marche* by contrast seems, well, pedestrian.

After three decades of Classicism on the rebound, there is no practitioner remotely approachin Lutyens's ability to recast Classicism for a new age. Classical architecture at best might persist like other anachronistic art forms—grand opera, for example—but seems most unlikely to thrive as it once di despite the passion of its present-day proponents. One thing is certain though. The near-religious fervor of it proselytizers insures that Classicism will always be revered in some circle as the one true architectural faith. ■

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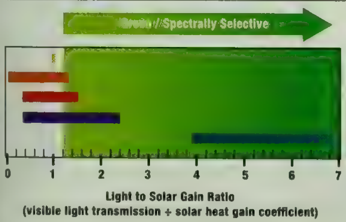

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When buildings fail: ethics for the worst-case scenario

Practice Matters

By Eugene Kremer, FAIA

Few architects are unaware of tragic building failures during recent decades. Perhaps best known is he July 1981 Kansas City Hyatt Regency skywalk collapse that took he lives of 114 during a Friday evening tea dance. The loss of life was limited to four in the May 2004 oof collapse at Charles de Gaulle Airport only because it occurred in early morning. It is still anguishing o contemplate the chaos, vast destruction, and massive loss of ife that would have resulted had a potential collapse of the 59-story Citicorp Tower in Midtown Manhattan not been averted during the summer of 1978.

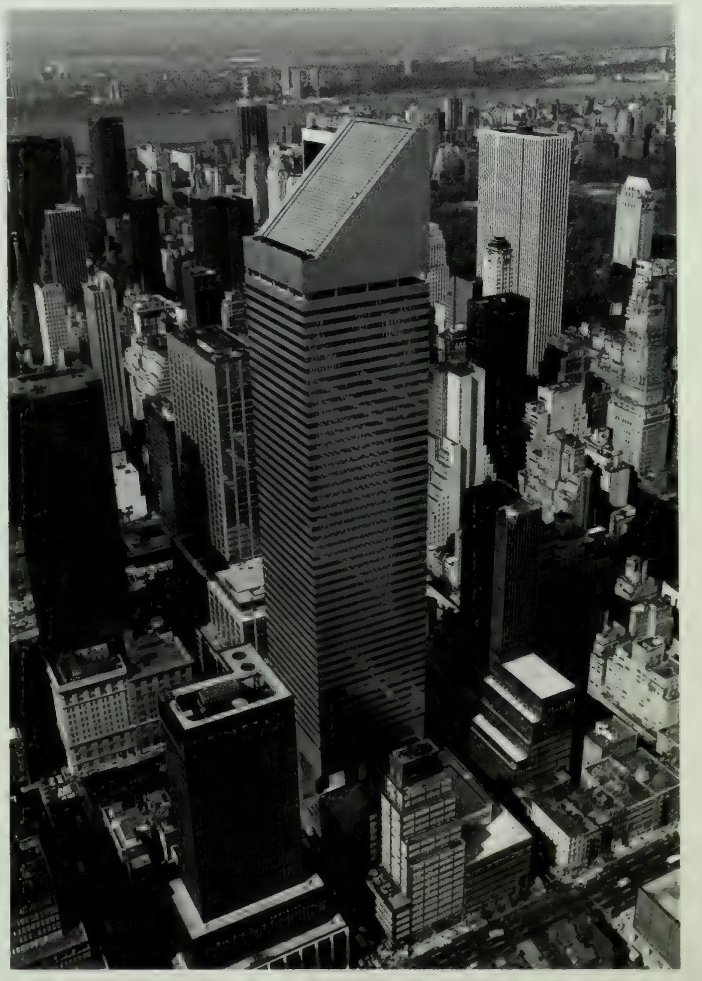
> **ARCHITECTS CONTINUE TO VISCERALLY RESPOND TO CRISES BECAUSE, AS WE ALL RECOGNIZE, DESIGN AND CONSTRUCTION UNAVOIDABLY INVOLVE RISK.**

Understandably, these and many other building crises warranted extensive media attention, as well as detailed investigations that sometimes yielded significant advances in building codes, techniques, and design practices. Beyond these rational explorations, however, architects continue to viscerally respond to such crises because, as we all recognize despite impeccable care, the design and construction of even the simplest building unavoidably involves risk.

Eugene Kremer, FAIA, is professor emeritus of architecture at Kansas State University. He lives in Arlington, Virginia.

In the course of routine professional practice, as we deal with apparently mundane problems—code interpretations, zoning variances, roof leaks, budget overruns, fees—we recognize the necessity to serve interests that are often in competition, if not at odds, with each other. We are charged to serve clients; the public health, safety, and welfare; to advance the usefulness of the profession; and, of course, fulfill obligations to partners, employees, consultants, and creditors, as well as to our families and ourselves. Charting an ethically sound path through this thicket is often daunting.

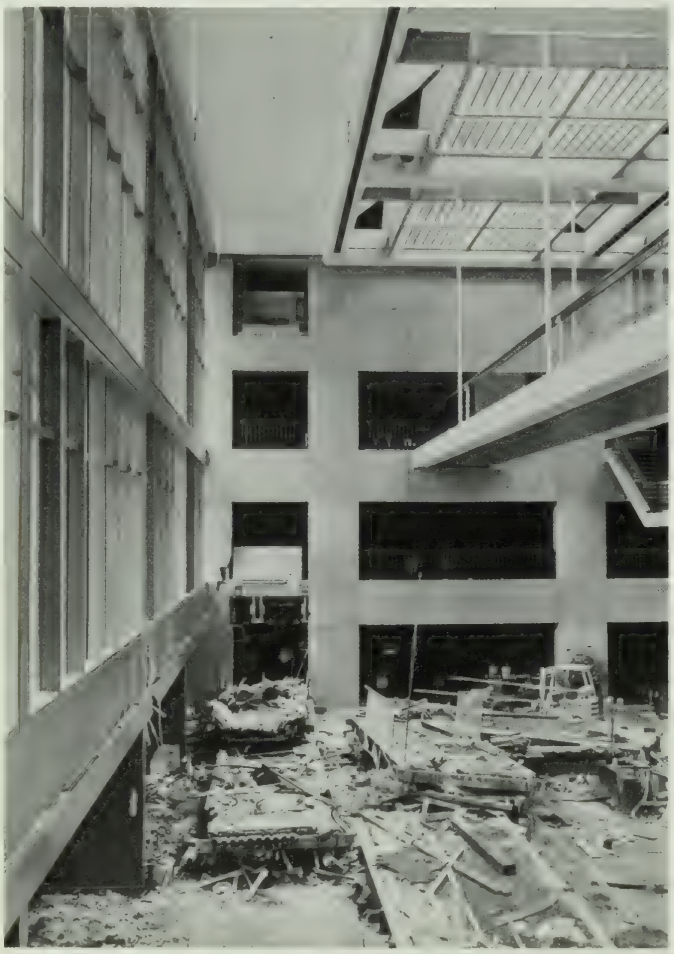
Regrettably, there has been scant systematic study of professionals' ethical decision-making in the face of crisis. Although few of us will directly encounter disastrous events, if we do, we will be under great stress and enormous time pressure to make thorny ethical choices. Those decisions are ever more difficult and the stakes are by definition far higher for everyone involved when structural collapse and loss of life are threatened, or when a disaster has occurred. There is rarely opportunity to mull what actions to take in these circumstances. Yet we can find little or nothing in the way of explicit counsel for codes of professional ethics.



The Citicorp Center opened with an inadequate structure which could have failed in a severe storm. It was repaired at night over several months, unbeknownst to the building's occupants or people living in the neighborhood.

Resources such as *The Architects' Handbook of Professional Practice* characteristically focus on risk management, risk avoidance, and conflict resolution rather than offering advice on dealing with disaster.

Drawing upon the thinking of people within and beyond our profession, this article offers ideas for preparing to deal with crisis, and explores alternate strategies for responding to looming disaster and to the aftermath of tragedy or its avoidance. It concludes with a gen-



On July 19, 1981, the collapse of two bridges in the lobby of the Hyatt Regency in Kansas City, Missouri, resulted in the death of 114 people. The tragedy was the result of a construction change to the original hanger design.

eral framework for professional ethics decision-making in crises.

How we deal with disaster

Unfortunately, the AIA ethical standards, largely based on the NCARB Rules of Conduct adopted by most state licensing boards, do not establish ethical norms that might serve as helpful guidelines for architects encountering building disaster.

Acknowledging the scarcity of resources available to architects faced with crisis, Victoria Beach, AIA, of the Harvard Design School, observes that the profession "seems to retroactively adjudicate rather than proactively solve ethical matters." Recognizing that the majority of ethics complaints involve petty turf wars, she initiated the Boston Society of Architects Ethics Forum to focus on more profound ethical quandaries.

The lack of published information often leads architects to turn for counsel to trusted members of their firm. Bob Berkebile, FAIA, a participant in the joint venture that designed the Kansas City Hyatt Hotel, recalls, "I found the most valuable [ethical] advice came from family, spiritual and mental health counselors, and attorneys not involved in the failure." In his experience, counsel offered by his lawyers and insurance company, the AIA, and fellow professionals was shaped by their perceived roles in the crisis at hand, or it was largely based on incomplete, often misleading media reporting.

Preparing for the worst

Your firm should create a plan for dealing with disaster and familiarize every member of the office with it. Several contributors advocate integrating structured ethical dialogue into office routines or designating an ethics officer within the firm. "Lack of preparation is what is unethical," says public relations professional Joan Capelin, Hon. AIA, who calls for "vigilant scrutiny of work and work relationships at the partner level that bespeaks quality procedures and mature acceptance of responsibility." She insists that every office ought to develop and maintain an up-to-date crisis plan incorporating 24/7 contact information, a prepared first responder and staff designated to ensure effective communications internally and externally. Such a plan can cover several stages of a disaster event.

"IN GOVERNMENT, WE DON'T HAVE 'SECRET' AS AN OPTION," SAYS NEW YORK CITY BUILDINGS COMMISSIONER PATRICIA LANCASTER, FAIA.

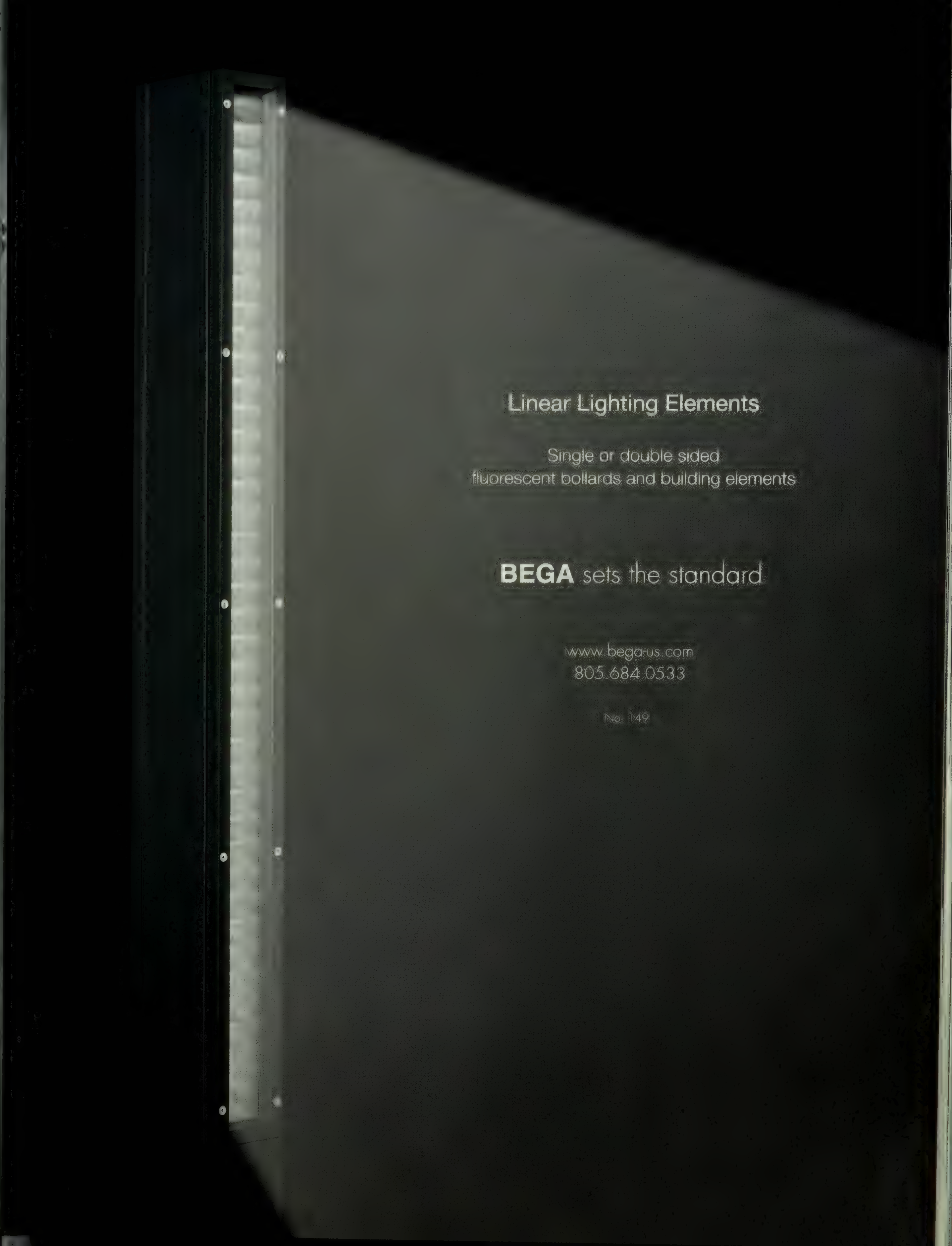
In the face of looming disaster

Avoid public panic. One of the most difficult decisions for an architect when there is evidence that a design or construction fault could cause a building collapse is how much to tell the users and the public and when to tell it. The implications can be serious. Do you avoid creating panic by remaining silent, or by making ambiguous or false statements while focusing on mitigating or resolving the problem? Should you remain silent when others—owners, professionals, public officials—make misleading or untrue public statements?

"No matter what, tell the truth in real time," argues writer and educator Andrew Pressman, FAIA, observing that the era in which paternalism by professionals was normative has passed. If the professional's role is that of honest collaborator, he believes remaining silent when others mislead the public "is simply not an option." Others embrace less forthright approaches. In an effort to reduce the likelihood of false public statements and avoid panicking the public, Berkebile advocates opening dialogue about the danger with a limited group of stakeholders, progressively widening that circle as the situation is clarified and as a collaborative approach to its solution is developed. Only then would the larger public be informed.

"In government, we don't have 'secret' as an option," says New York City Buildings Commissioner Patricia Lancaster, FAIA, but she acknowledges that timing is important when it comes to informing stakeholders. To avoid making actively misleading comments, she advocates responding with "no comment"; and to challenge false comments from others, answering, "We question the validity of the statement." The AIA's Code of Ethics is clear: "Members speaking in their professional capacity shall not knowingly make false statements of material fact." While ambiguous or false statements may not violate the law, countenancing them heightens the risk of harm to people and property if a failure occurs. Professional status carries the obligation to openly acknowledge problems and give priority to actively rectifying the fault wherever responsibility for the crisis may lie.

Actively inform owners and users. Deciding to inform building users and the public of a looming disaster so they may act in what they perceive to be their self-interes engenders another set of issues.



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This strategy risks unnecessary disruption of personal, civic, and business activities, as well as additional public safety agency expenditures. It also increases the likelihood of damage claims and public relations debacles for owners, design professionals, localities, and others that would have been avoided if the danger had not been disclosed and the problem were safely resolved. Management consultant Peter Piven, FAIA, warns that concerns about potential business disruption, additional government expenses, and damage suits must yield to the obligation to protect public health, safety, and welfare.

Cautioning against acting precipitously without sufficient information to substantiate a safety risk, attorney Bill Quatman, FAIA, affirms the ethical duty to inform. He recalls a court case involving the failure of an engineer to report an unshored trench that collapsed, killing a worker. His defenses—that construction site safety was not in his contract and that the worker's supervisor saw the trench—were rejected by the court. As a professional, the engineer was obliged to act when he recognized the safety risk. Faced with a known risk to safety, Quatman counsels that the professional should inform the client that the danger will be made public and invite the client to issue a joint disclosure or otherwise collaborate in revealing the problem. Ultimately, a client's desire for secrecy cannot override the obligation to disclose.

"IF A PROBLEM HAS BEEN RESOLVED, EVEN AFTER A DISASTER, THERE IS NO REASON FOR PUBLIC DISCLOSURE IN MORE DETAIL THAN TO INDICATE THAT THE PROBLEM HAS BEEN RESOLVED," SAYS STRUCTURAL ENGINEER MATTHYS LEVY.

Professor Michael Davis, of the Center for the Study of Ethics in the Professions at the Illinois Institute of Technology, declares, "Candor is not cost free. If it were, our moral life would be much easier." He warns of the consequence of maintaining a secret for a time only to have it revealed and to be accused of a cover-up, which, when combined with the initial problem, can transform a public relations problem into a debacle, stimulate a suit, or sully reputations. Even when a secret is maintained, "Success does not make a moral wrong any more right—even as it makes it seem more attractive," says Davis.

Once disaster has struck or has been averted

Avoid public comment. After resolution of a crisis or in the aftermath of a disaster, design professionals must again weigh the potential consequences of ethical choices they confront. Is it best to evade, avoid, or refuse public comment or to share the information—complete or not—that is presently available? What consideration is merited by the possibility of legal action arising from the crisis or the disaster? What if silence heightens the likelihood of denying the lay public access to information of value in protecting itself from risk; denies design professionals of insight that might advance their knowledge and skill; or denies regulatory agencies of understanding that might lead to useful reform?

Observing that demand for information varies directly with the significance of the threatened calamity or the disaster, long-time executive editor at the AIA Joseph Demkin, AIA, acknowledges the risks of sharing information before all the information is at hand. But he also points to the likely risks of withholding information: suspicion and diminished confidence, loss of future commissions, legal challenge, and the inability to educate other professionals and thereby lessening risk in future buildings.

Structural engineer Matthys Levy, co-author with Mario Salvadori of *Why Buildings Fall Down*, a book that lucidly explains to lay readers the causes of many major building collapses, has apparently changed his thinking, stating, "If a problem has been resolved, even after a disaster, there is no reason for public disclosure in more detail than to indicate that the problem has been resolved." In discussing his present view, Levy cites contemporary insurance and litigation concerns as well as the risk of "confusing" nonprofessionals with more technical information than can be absorbed. Berkebile conjectures that "delaying the release of information to the public might in fact improve the quality of information, which in turn would improve professional insight and reduce risk." He points out that early public disclosure can elicit insurance claims and lawsuits resulting in delays in the dissemination of information needed for reform of professional practice and regulation.

Share available information. The architect who decides that quickly and forthrightly sharing information is the sound ethical choice might encounter objection from the client demanding confidentiality in order to avoid a public relations disaster. Technology journalist Kenneth Jacobson argues that, aside from the primary responsibility to ensure public safety, sharing information "should be the basic goal, keeping in mind that speed can be the enemy of accuracy and that forthrightness, when offered up thoughtlessly, can lend itself to being sensationalized."

If a disaster results from a known design flaw, Joseph Demkin asserts that a client's desire for secrecy cannot prevail. He points out that our legal system does not incorporate architect-client privilege and Rule 3.401 of the AIA Code of Ethics permits the professional to "reveal a confidence that is contrary to other ethical duties … or to applicable law." In considering a client's demand for a confidentiality agreement, attorney Carl Sapers, Hon. AIA, believes the architect must consider whether disclosure would advance the profession's knowledge base "and is therefore worth fighting for."

Quatman states emphatically, "The client does not dictate ethics to an architect." Viewing damage claims in such cases as unavoidable, he advocates early public disclosure since delay is likely to engender charges of a cover-up, thereby compounding the public relations damage for all involved.

A conceptual framework

Victoria Beach offers a conceptual framework for engaging professional problems that should provide a useful starting point as we grapple with vexing ethical choices in crises. Employing the rubric "Others First," Beach proffers a hierarchy of professionals' responsibilities: "Always serve the public first, then client, then craft and colleagues (the latter two perpetuate the professional's capacity to serve the former two)." By definition, professional careers are focused on service to others rather than on self-interest, which is therefore assigned the last position in the hierarchy. It follows then that "if keeping a professional secret serves only yourself and harms others, you should tell." Pursuing that logic further, "You should tell if your client's interest endangers the public interest."

It may be inevitable that even among experienced, thoughtful professionals and academics there will be disagreement on the ethical appropriateness—and potential consequences—of alternate courses of action when architects are confronted by crises. Or, perhaps the diversity of views we encountered affirms not only the difficulty of the issues but the need for continued dialogue that might help move our community toward shared ethical understandings. ■

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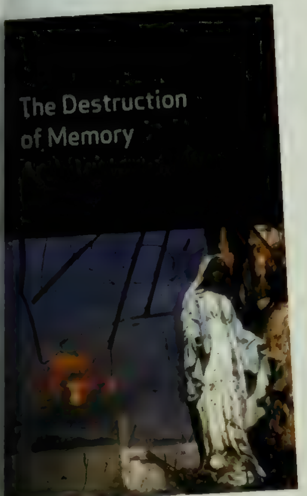
Rising from the ashes: How war and destruction shape the places we live in

Books



**e Destruction of Memory:
chitecture at War**, *by Robert
van, London and New York:
aktion Books, 240 pages, 2006,
5.*

the very first paragraph of this
rceful, meticulous book, author
bert Bevan concedes that the
te of buildings might seem trivial
mpared to other victims of con-
t. "Dwelling even for a moment
the shattered remains of muse-
ns and churches felt, at best,
lf-indulgent and, at worst, an
dication of warped priorities," he
rites of his reaction as a child to
e cultural and physical carnage
World War II.

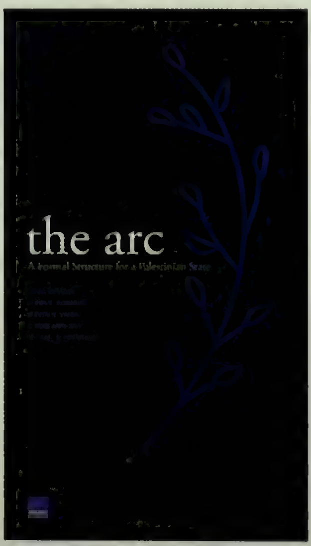
But as Bevan, the former editor
England's *Building Design* maga-
e, makes all too clear in the
ges that follow, the destruction of
society's landmarks often is a
ute show of force that says noth-
g is sacred, or a warning of worse things to come. The book circles back repeatedly to the 1990s strife in the former Yugoslavia, where the ethnic cleansing pursued by Serbian leader Slobodan Milosevic included the destruction by shelling of Croatia's National Library. But Bevan's reach is much more extensive, establishing a historical context that shows how Serbian transgressions are echoed by too many others: from the torching of 267 Jewish synagogues by Nazis on Kristallnacht, in 1938, to communist China's systematic and ongoing replacement of traditional Tibetan buildings with "crude concrete boxes"; from the carpet bombing of Dresden in World War II to the terrorist attack on the World Trade Center five years ago.

Bevan concludes by calling for a new international war crime classification, "cultural genocide," when buildings and landmarks are singled out for destruction because "the erasure of the memories, history, and identity attached to architecture and place—enforced forgetting—is the goal itself." Even enacted, such a law would have little effect; the only tyrants who tend to be judged are the losers, and they're judged for other actions first. But the thoroughness and passion of Bevan's survey is itself an act of remembering—and for that precise reason, it has value that will endure. *John King*

The Arc: A Formal Structure for a Palestinian State, *by Doug Suisman, Steven N. Simon, Glenn E. Robinson, C. Ross Anthony, and Michael Schoenbaum. Santa Monica, California: RAND Corporation, 2005, 93 pages, $33 (paperback with DVD).*

The Arc, a 140-mile, north–south corridor proposed by the Rand Corporation and the authors of this book, would connect nine of 11 West Bank urban centers with four in Gaza. As a path for large-scale infrastructure development, it could direct Palestine's anticipated rapid population growth and promote economic development and national stability. Conceptually, the Arc is a bold and simple—even elegant—solution.

This study of the Arc emerged from recent RAND initiatives that developed policy options aimed at ensuring a successful Palestinian state. The study is directed to the international community and stresses that Palestine, to be successful, must be integrated into its region, in addition to being internally cohesive.

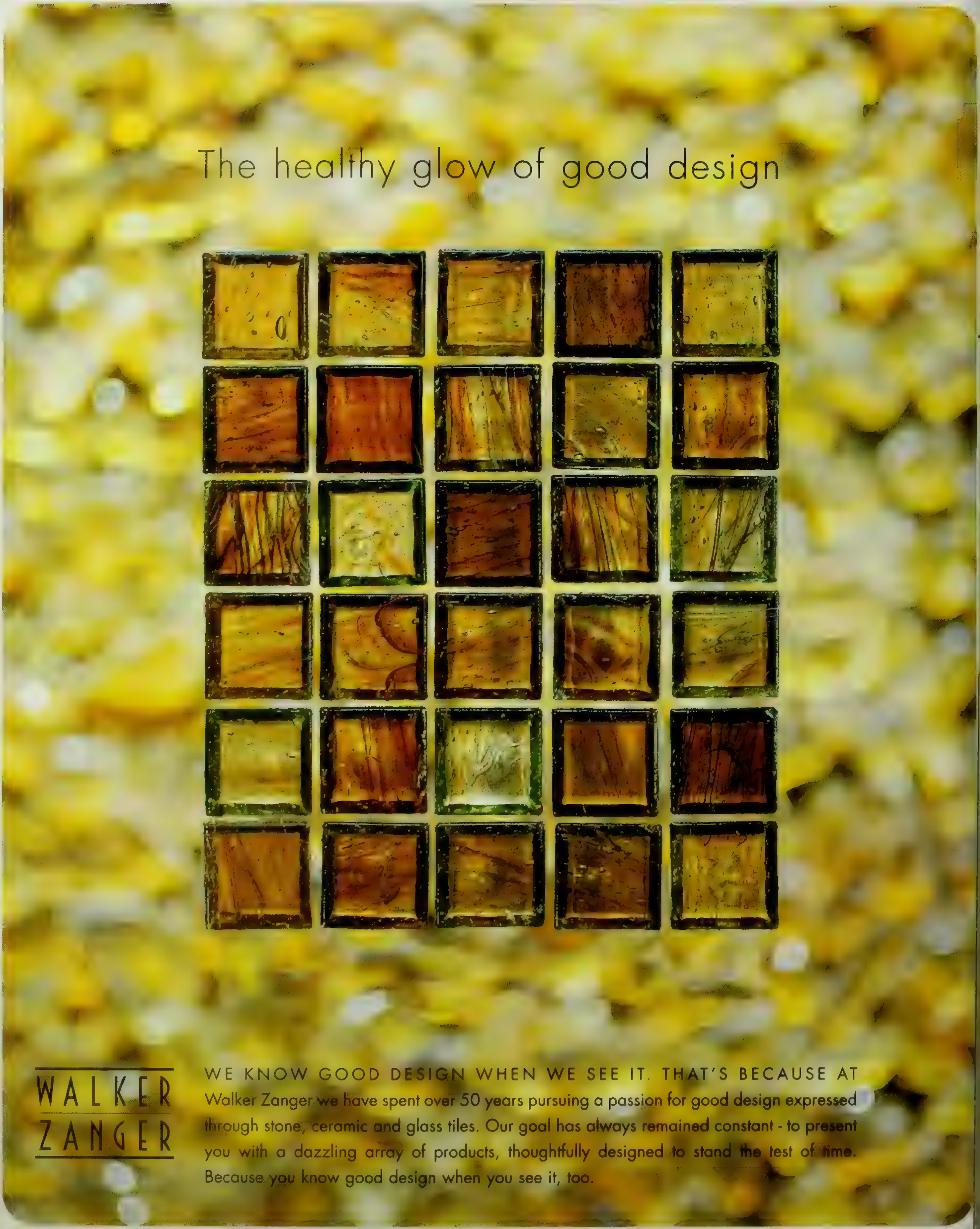


So far so good, but the text skillfully sidesteps areas of potential conflict and minimizes obstacles to the Arc's implementation, and the authors accept as reasonable the low projected cost of $8.14 billion. The report fails to comprehensively explore environmental, social, and cultural factors that will determine Palestine's future. Too often, the authors make recommendations that "would require careful study," and their suggestions aren't supported by evidence. They write, for example, "A national linear park could weave back and forth across the line [of the Arc] as influenced by the landscape." How, where, why? We're not told.

Site maps, often without scale or appropriate keys, are usually too small for meaningful analysis. Images accompanying the text are often generic and unenlightening. In the end, the report is more an extended executive summary for politicians and entrepreneurs than a realistic planning study. The solutions seem to have prefigured the analyses. It's a worthy beginning, the middle and end of which remain to be written. *Lake Douglas*

Structure and Meaning in Human Settlements, *edited by Tony Atkin and Joseph Rykwert. Philadelphia: University of Pennsylvania Press, 2005, 384 pages, $60.*

It's a given that social conventions help shape settlement forms. Less



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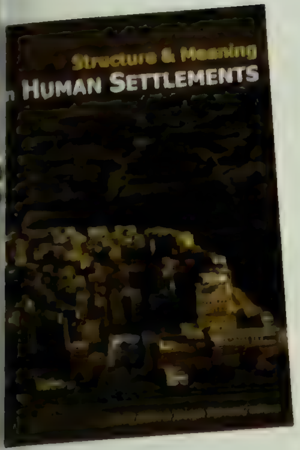

vious, perhaps, is that the prag-
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ciety that go well beyond its infra-
ructure or built fabric. "We might
en learn to see architecture as
t just a possibly desirable aes-
etic supplement, but as the
nbodiment of social intentions and
cultural meaning," write editors and contributors Atkins and Rykwert.

This notion is the springboard for most of this volume's 24 widely ranging essays by archaeologists, classical scholars, geographers, architects, landscape specialists, and urban and regional planners. In early chapters, written by different authors and bearing such titles as "Cosmological Structure of Ancient Egyptian City Planning," "The Ideas of a Mayan town," "Holy Mountains," and "The Language of Memory in Chinese Gardens," you learn about ancient and early settlement patterns.

More interested in contemporary settlements? You'll find analyses of their patterns and problems in the book's final eight chapters. Among them are M. Christine Boyer's "The Primitive Origins of Modern Architecture (Le Corbusier's Voyage to the East)," Thomas J. Campanella's "Transplanting the New Jersey Turnpike to China," Laurie Olin's "Landscape Ecology and Cities," Michael Sorkin's "Settlements After Now," and Denis Cosgrove's "21st Century Nomadism and Settlement."

Olin reminds us that in the recent past the study of ancient sites and primitive societies "was an attempt to make a break from the perceived formal traditions and habits of the moment," and that these efforts rarely produced models useful for coming to grips with problems of highly evolved contemporary cities.

Today's major cities, Olin writes, are not coherent single structures; they are "too extensive, too polyvalent, too multilayered, and too multicentered." He views cities in terms of the new discipline of landscape ecology, which sees landscapes as collages or palimpsests of patches, corridors, and matrixes formed by dynamisms and instabilities, energy flows, and interactions between populations. Cities, he thinks, are no different.

In discussing prospects for the future, Sorkin notes that because the world annually adds the equivalent of 50 cities of one million inhabitants, "the press is above all quantitative." He writes that creating new meaningful settlements will "rely—more intrinsically than ever—on frankly artistic strategies" and on the accidental. He brings the book full circle by writing that while these new cities will be global, "bio-regional character and necessity inflected by the daily habits of citizens have always lain at the heart of settlement form. Here we can really learn from the millennia." *Andrea Oppenheimer Dean*

Informal City: Caracas Case, *edited by Alfredo Brillembourg, Kristin Feireiss, Hubert Klumpner. New York: Prestel Publishing, 2005, 360 pages, $60.*

Shantytowns, squatter settlements, slums, bidonvilles, favelas, and barrios are some of the names for spontaneous, unplanned collections

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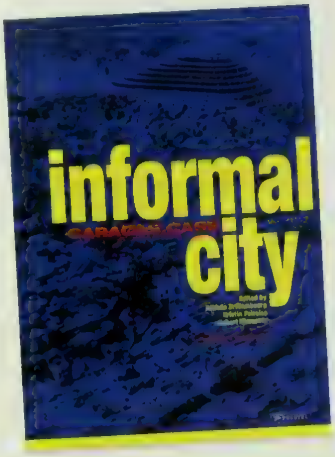

of habitations that sprawl around ever-growing cities found for the most part today in developing countries. These settlements house as much as 80 percent of the world's population.

"Informal city" is what Alfredo Brillembourg and Hebert Klumpner choose to call this expansive urban phenomenon. And a good term it is—neutral, value free, and lacking the negative connotations of names from the past. They have chosen Caracas for investigating the "informal city," and this book, coordinating the research of the Caracas Urban Think Tank team, is a Herculean group effort involving 10 international teams that included photographers, visual artists, architects, planners, writers, ethnologists, and social and cultural scientists.

Informal City is information-dense, packed with documents selected from volumes produced by the teams. Texts, photographs, diagrams, charts, drawings, and various forms of mapping by more than 40 participants fill pages that almost vibrate with energy. The primary text is English, accompanied by German, but curiously and inexplicably there is no text in Spanish. The research project was sponsored by the German Federal Cultural Foundation.

Informal settlements respond to the primal human urge to dwell as a community. They are the fundamental vernacular. By the end of the 1950s, there was much disillusionment about Modernist planning's ability to house the masses, and those like Team Ten, who sought solutions outside Modernism, looked to both traditional and contemporary vernacular settlements for new insight.

For 1960s architects who abandoned design for political activism, informal cities, especially those in Latin America, such as the infamous favelas of Rio de Janeiro and São Paulo, became exemplary "peoples architecture." They were to be celebrated and learned from, especially their bottom-up design. Caracas Urban Think Tank follows in this tradition. The group is hesitant to offer solutions but exhaustive in offering documentation and analysis.

Caracas Urban Think Tank departs from its forbears in situating the informal city within the context of globalism and in its understanding of how the informal city participates in the dynamics of the megacity. Because of globalism, the scale and unrestrained growth of most informal cities today surpasses anything experienced in the 1960s.

One of the features of advanced capitalism in today's developing world is the polarization of two modes of appropriating urban space, one formal and one informal, reflecting economic and social polarization and the extraordinary pressure that internal migration places on the city. Caracas Urban Think Tank has devoted enormous energies to understanding the spatial consequences of these pressures on Caracas and on life there. And while understanding is important, *Informal City* demonstrates that solutions are still far beyond reach. *John A. Loomis, AIA*

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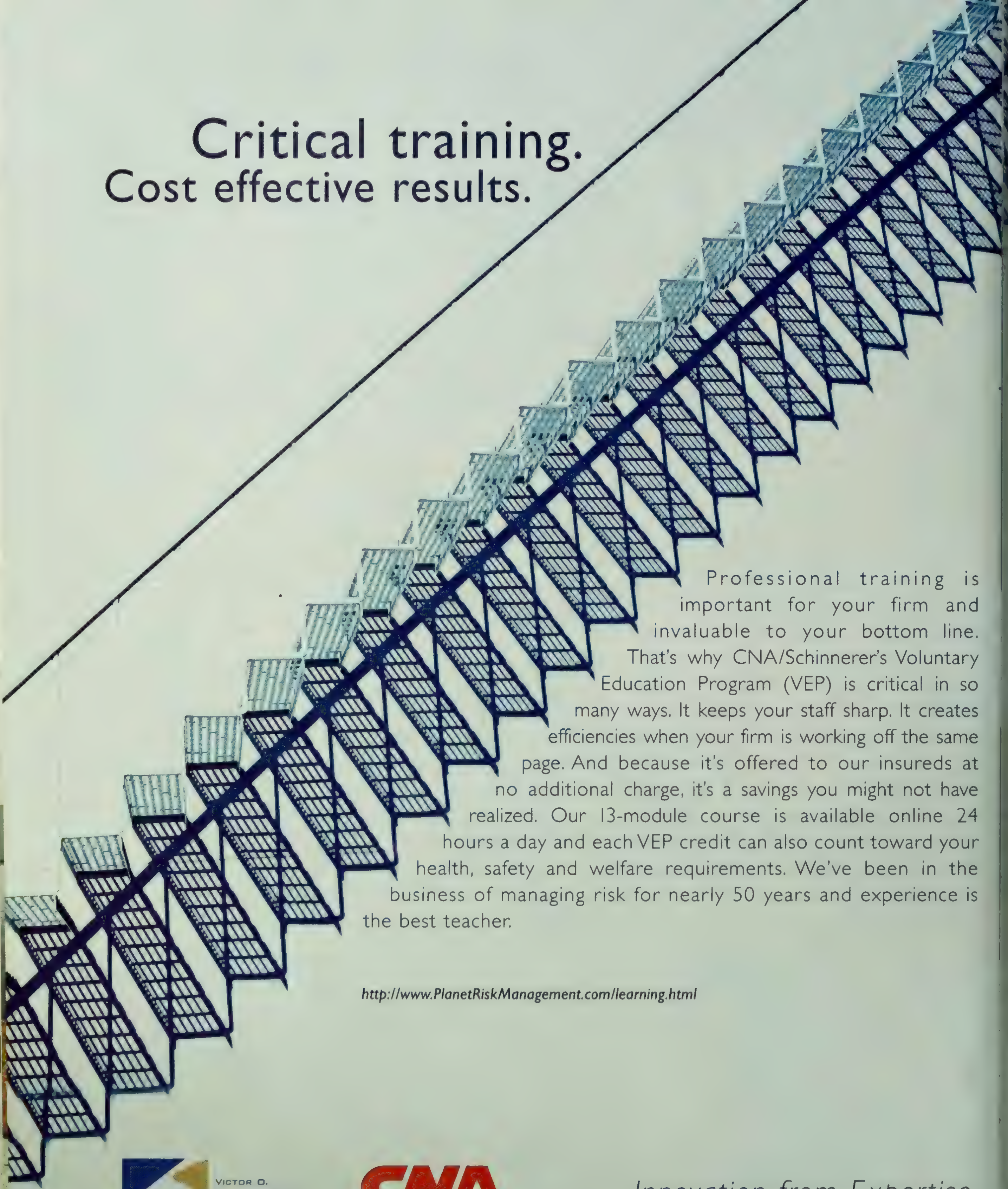

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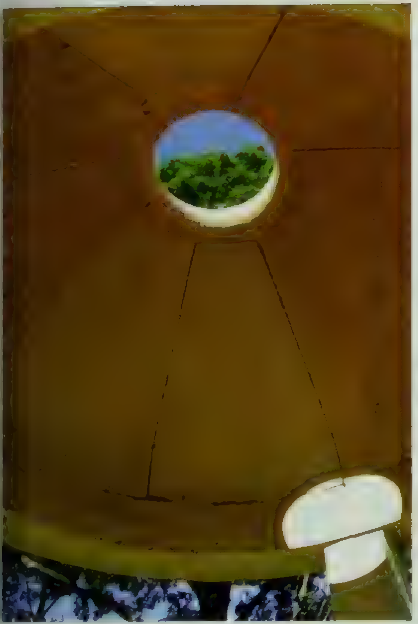
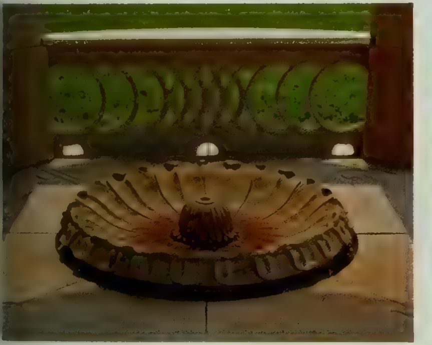
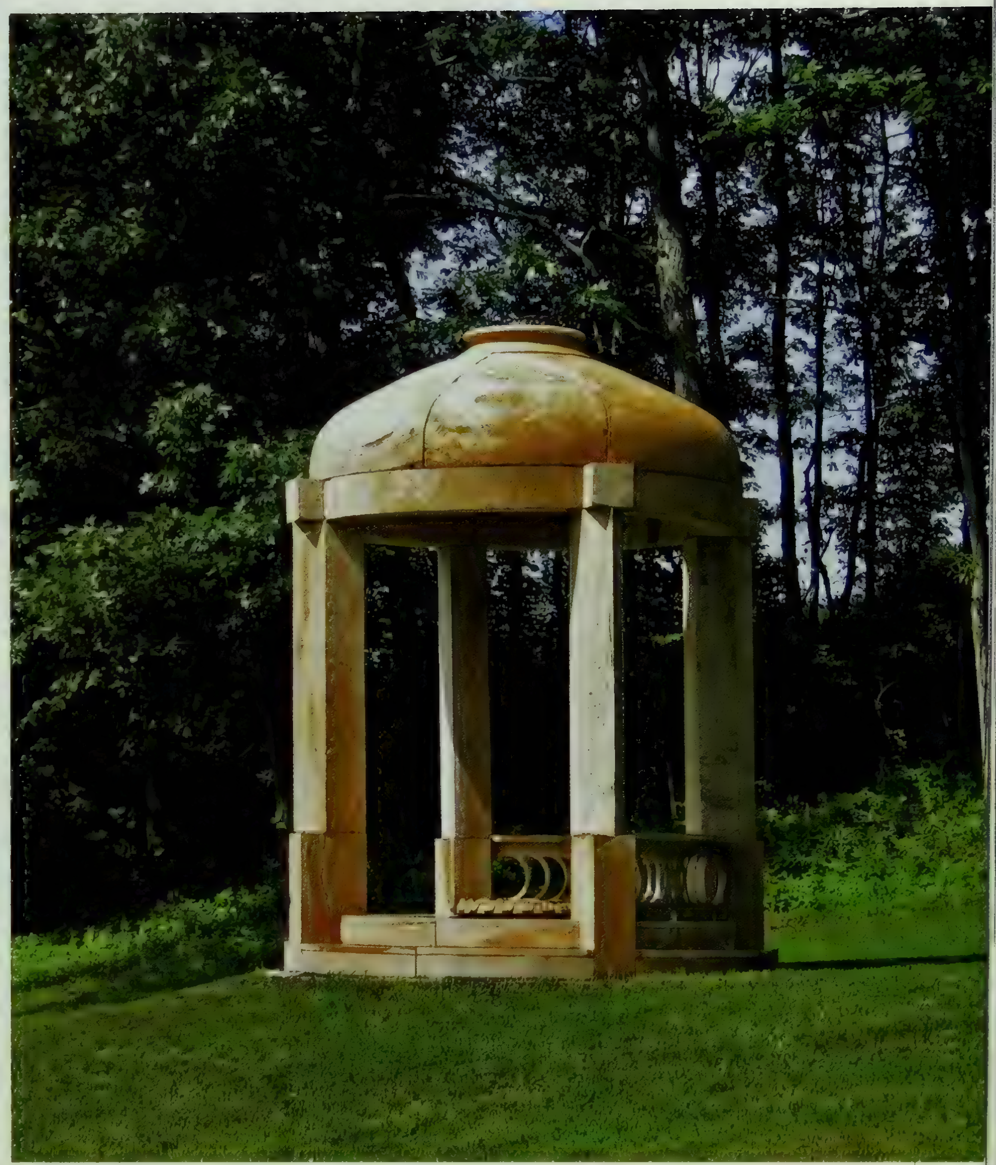
Product View



e dome features a round skylight (top) that lets both light and rain. The lotus flower rain catcher s under the oculus, with the moon screen hind it (below). The observatory (right) stands four pillars and is constructed without mortar.





y Rita Catinella Orrell

East meets West in a modular stone observatory

escribed by the Prism Stone in Architecture Awards jury as "a won-erful garden folly that proves simplicity can be satisfying," the Rain atcher observatory was presented with a Prism Award of Merit at is year's Coverings trade show (reviewed this month on page 228). esigned by Tarik Currimbhoy of Currimbhoy & Co., in New York City, and handcrafted by its affiliate Sana Stone, Rain atcher faces west on the highest point of a residence in Ghent, New York. "It's poetry in stone", says Currimbhoy. "We want bring stone back into the American vocabulary." Made of yellow limestone, the 20,000-pound modular structure was fabri-ated in India and transported in sections, with interlocking pieces assembled on-site. Built without mortar (copper pins were sed for additional security), the collar of the dome works as a keystone, locking the dome into place. Set along the cardinal oints of the compass, the structure is rich with details: A central oculus pierces the dome and lets in light and weather; and-carved screens support the benches and show the phases of the moon; and a carved lotus flower on the floor is both e eponymous rain catcher and also functions as a compass. Sana Stone, New York City. www.sanastone.com **CIRCLE 200**

NY Towers *Kirkor Architects & Planners, Toronto* Photo courtesy of Dryvit Systems, Inc.

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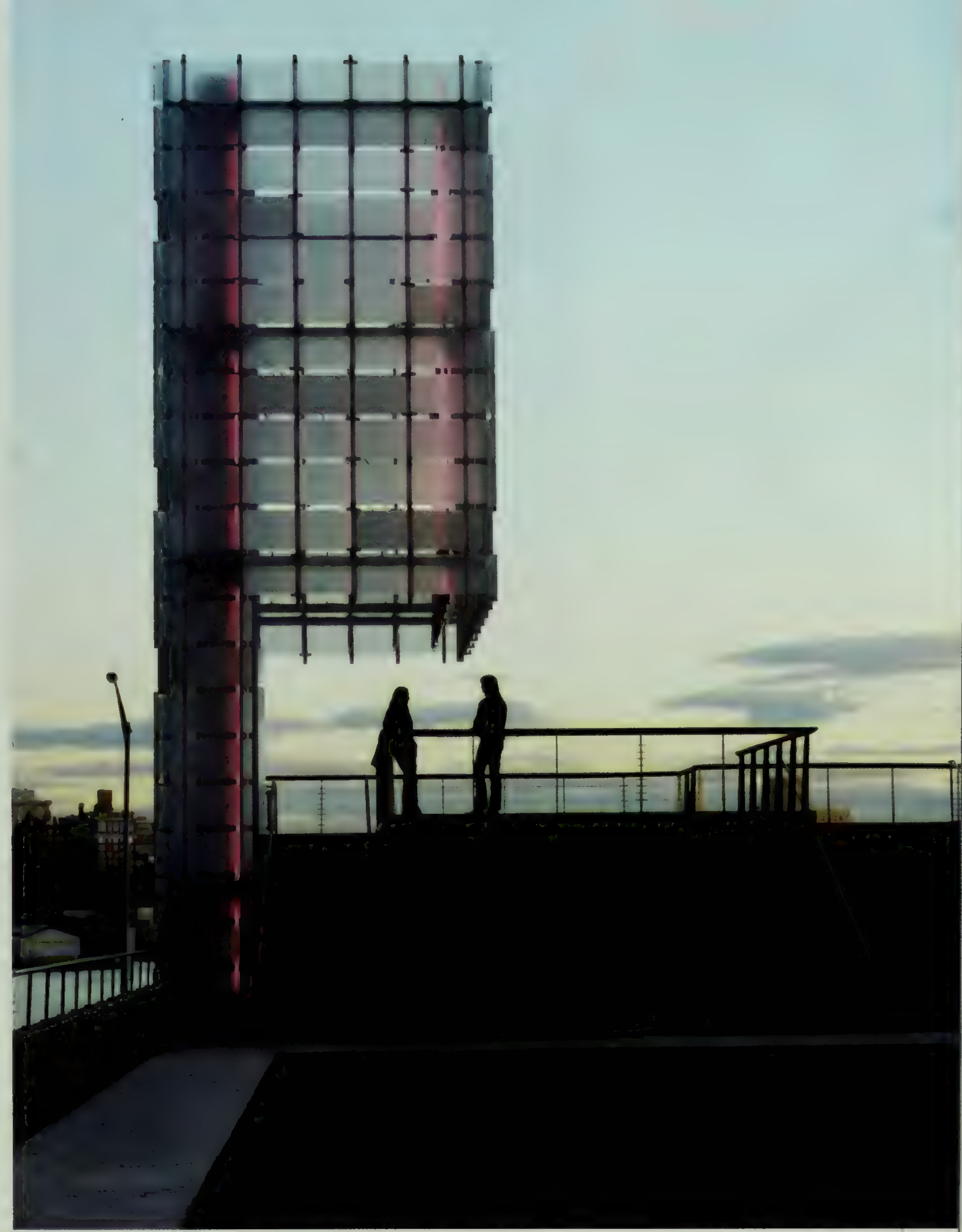
Snapshot



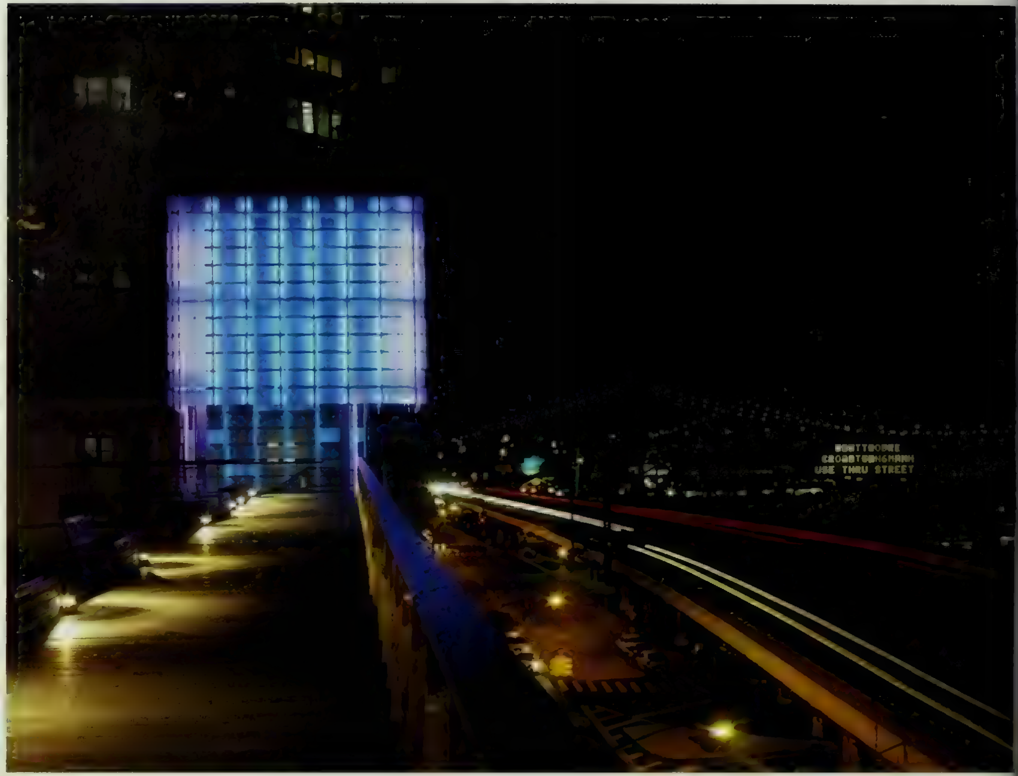
By John Gendall

Beacon signals the arrival of revived public space

No one is eating oysters naked, but a recently revived plaza in New York City has been sent skyward. On the edge of Manhattan's Wall Street area, Rogers Marvel Architects and landscape architect Ken Smith have transformed a drab, windswept corporate brickscape into an acre of vibrant public space.

In his seminal 1978 book, *Delirious New York*, Rem Koolhaas famously imagined a point where New York's culture of congestion results in a condition where the entire city grows vertically. Everything, up to and including "eating oysters with boxing gloves, naked," will take place high above the street.

To a small extent this has happened at 55 Water Street. Above the parking garage for the largest privately owned office tower in New York, 55 Water Street Plaza holds the distinction of being the city's only elevated public plaza. Opened in 1972, the area soon fell into disrepair. "What existed on the site before was dead space," explains Rob Rogers, AIA, principal of Rogers Marvel Architecture, which, with Ken Smith, won the 2002 competition spon-



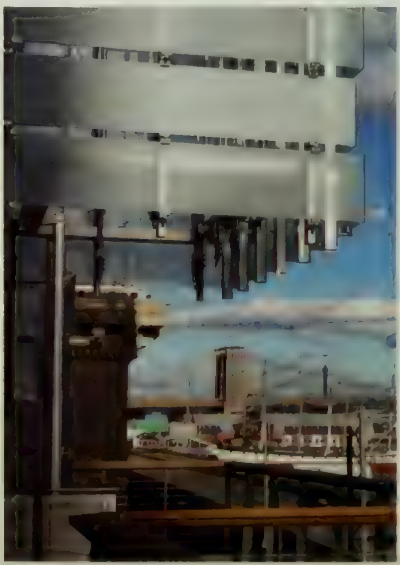
Visible from the FDR Drive and parts of Lower Manhattan and Brooklyn, the beacon is a new landmark designed to give visibility to an elevated public plaza.

sored by the building's landlord and the Municipal Art Society to resuscitate the plaza.

Because the park is largely hidden from street-level, the architects wanted to create an element that would announce the plaza as public space. "You can't simply be invited up," says Rogers, "you have to be enticed." The plaza's lanternlike "beacon" serves as this enticement.

A 60-foot-high tower of laminated-glass panels with custom fittings and backlit with color-changing LEDs, the beacon advertises the plaza whose northeast corner it occupies. Its 1,000 feet of custom-made linear LEDs are fully programmable and set the tone as they change color throughout the day and across the seasons at an imperceptible rate.

The park itself is composed of three elements. A "Long Island dunescape" creates a sense of intimacy with its native grasses and plants. An event lawn with surrounding amphitheater seating manages heavy traffic by incorporating artificial turf. And the East River boardwalk, a prototypical design, is elevated more than 30 feet above South Street.



The plaza's gentle grade, which rises from the main Water Street entrance up to the boardwalk, builds up anticipation for the East River view and helps reduce city noise. The sounds of crickets chirping and the grasses swaying in the wind make this culture of congestion seem decidedly uncongested, while the boardwalk on the park's eastern perimeter reveals a more urban vista, with the traffic of the FDR and the nearby helicopter pad, the New York Harbor, the Brooklyn waterfront, and the Brooklyn Bridge.

The architects designed the space for year-round use by both the tenants of 55 Water Street and by the general public. Future events planned for the park includ film screenings, company picnics, and any other activitie that are suited to a public space—perhaps even some involving boxing gloves and oysters. ■

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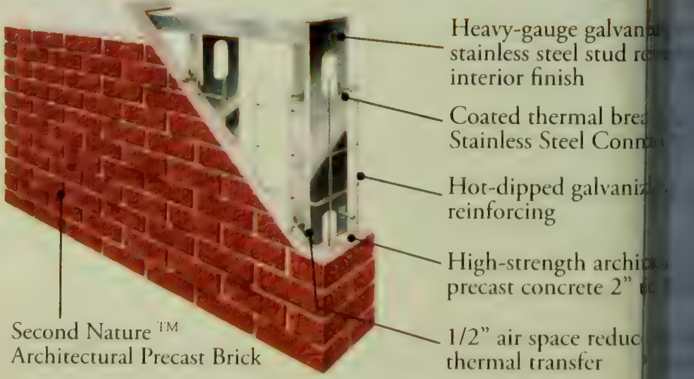

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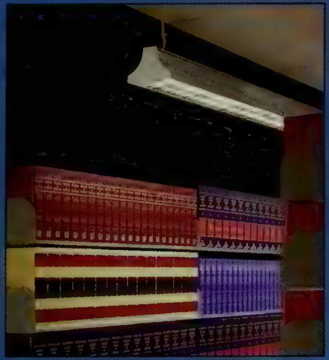
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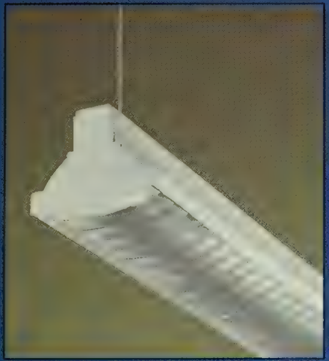

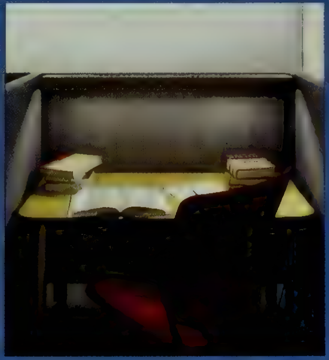
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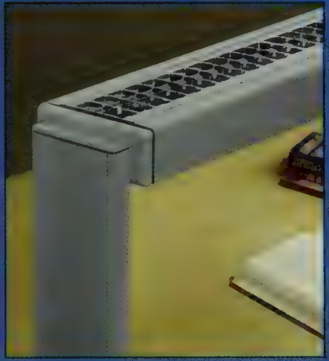

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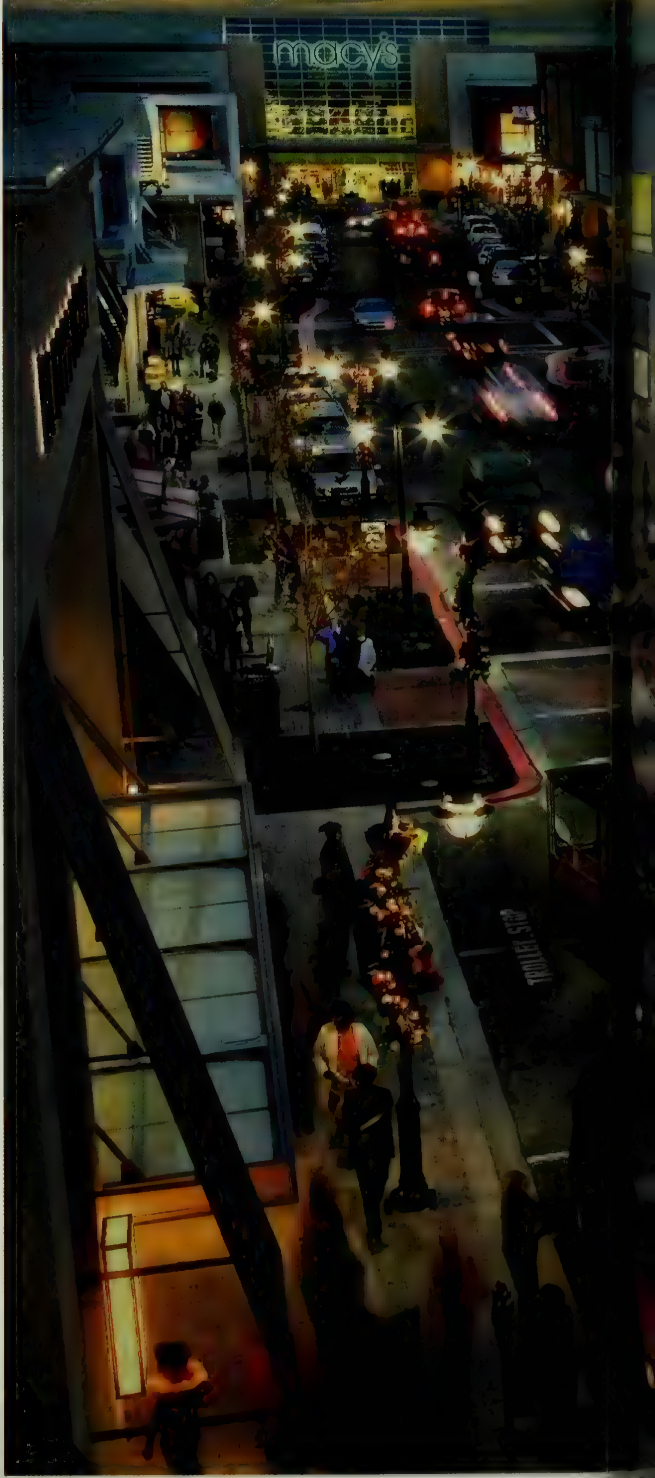
Prêt-à-Cité

By Thomas Hine

Back in the 1970s, there was a lot of talk about how shopping malls had become the new downtowns. Civic life, from which Americans had spent decades trying to escape, was blossoming anew, it was said, amid the plastic plants and the shoe stores.

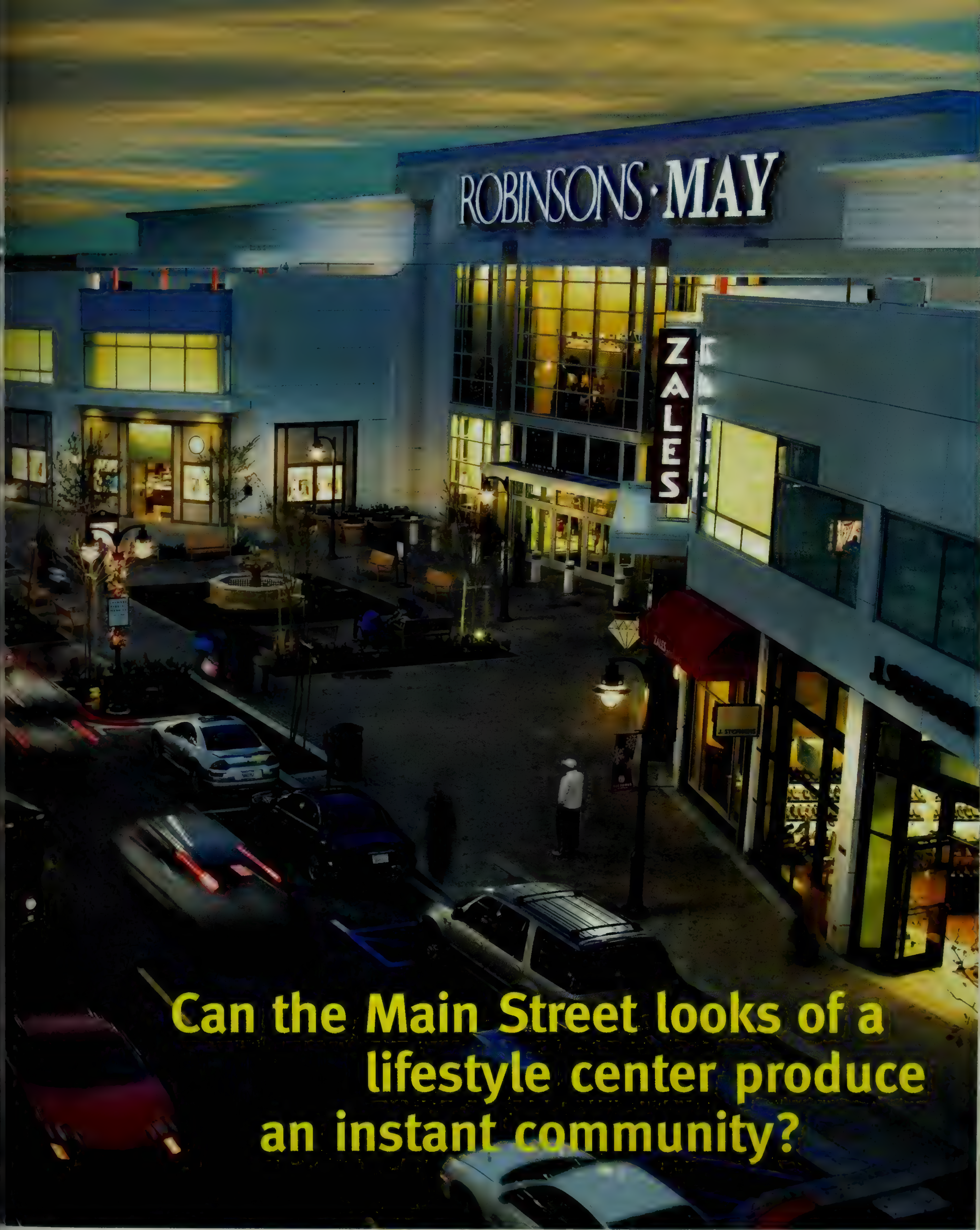
Even at the time, the argument was a bit ridiculous, as anyone who tried to distribute a pamphlet or advocate a position soon discovered; retail developers suppressed the substance of public life as relentlessly as they removed old chewing gum. As for aesthetics, anyone could see that putting a fountain in front of J.C. Penney didn't make it into the Piazza Navona.

Nowadays, many people are harboring some of the same idealistic—or nostalgic—hopes for the fastest-growing retail format of the moment, the lifestyle center. This is a sort of hybrid of a strip center and a mall, with Main Street overtones. It is outdoors, with varied, yet carefully regulated, building profiles, materials, and signage that are intended to evoke a sense of organic growth over time. Parking is abundant, but usually interlaced



Victoria Gardens opened in 2004, giving Rancho Cucamonga, Calif., an instant town center, replete with streets for cars and pedestrians. Designed by Altoon + Porter Architects, the 150-acre site encompasses 1.3 million square feet of shops, offices, and eventually town homes.

Thomas Hine is the author of I Want That! How We All Became Shoppers *and* The Rise and Fall of the American Teenager, *among other books. He was architecture critic for* The Philadelphia Inquirer *from 1973 to 1996.*



Can the Main Street looks of a lifestyle center produce an instant community?

with the stores and punctuated by landscaped walks. The projects have names such as "The Shoppes at Grand Prairie," which is located near Peoria, Illinois, and touts its Georgian Revival architecture, or "Aspen Grove," a center in Littleton, Colorado, that features an actual grove of aspens and whose buildings employ seemingly haphazard rooflines and patches of red wooden siding to resemble a cluster of barns.

Such developments usually lack department-store anchor tenants, but they give high visibility to nationally known chains—such as Williams-Sonoma, Restoration Hardware, Banana Republic, and Whole Foods—that offer distinctive products and experiences. They also include a wide range of restaurants, and sometimes nighttime draws such as multiplex cinemas and comedy clubs. Only a few years ago, lifestyle centers averaged 150,000 square feet, but those currently in development range from 500,000 to nearly 1 million square feet.

The building of new malls has come to a near standstill, while lifestyle centers have spread north from the sunbelt and are now operating, or in development, in every part of the country. Typically, they first appear in affluent, fast-growing exurban areas—one reason why per-square-foot sales at lifestyle centers average roughly 22 percent more than at malls, according to the International Council of Shopping Centers. With these numbers, it's easy to see why new ones are springing up so rapidly, and developers are reconfiguring their existing malls according to this model.

Crocker Park, a 1.75-million-square-foot development in Westlake, Ohio, contains 50 percent of housing paired equally with retail and office space. According to the master plan, designed by Bialosky + Partners Architects, apartments and condominium units occupy floors above ground-level shops—creating an active street life and increasing density in an otherwise centerless suburb of Cleveland.

The mall, the traditional shopping center form, was based on having two or more department stores at its extremities that would generate plenty of foot traffic for the smaller stores in between. Today, although department stores aren't quite extinct, there are fewer of them, and those that remain lack allure. Fortunately for retail developers, many other retailers are familiar and attractive to consumers, with brands that span catalogs and Web sites. An outdoor center gives these brands a visible presence, and it allows shoppers to park near their favorite stores, get what they want, and get out without enduring a forced march through Macy's.

The Camp features a rough-and-tumble aesthetic shared by the outdoors enthusiasts who shop at its 14 sports specialty stores. This 36,800-square-foot center occupies a brownfield site in Costa Mesa, Calif. Its architect, Bauer and Wiley, designed the project around a series of themed outdoor spaces with names such as Meadow and Arroyo, where customers can test products.

Efficiency seems to be a real advantage for shoppers. A recent study found they spend about $84 an hour in lifestyle centers, compared to $58 an hour at malls. They visit the same number of retailers, but they spend less time per visit: 56 minutes, as opposed to 76 minutes. The contemporary time-stressed consumer finds real value in being able to get what they want and get out quickly. This flies in the face of age-old retailing wisdom that says if people spend more time in a retail environment, they will spend more money. It also contradicts the rhetoric of lifestyle-center promoters who say that they are developing centers of community where people can gather day and night to enjoy unique, urbane places. The main attraction for shoppers, though, is that they can use these places like a real-world Internet that offers instant gratification.

There's no reason, of course, why a shopping center can't be both a pleasant place to linger and an efficient place to shop. Lifestyle centers offer consumers more freedom and flexibility than malls. It is up to those who design these properties, along with those who design the stores and merchandise them, to make places where people will want to spend more time.

Each lifestyle center claims to be unique, despite offering a familiar lineup of stores, so architects should benefit from greater opportunity to explore local traditions or express community values. Yet, aside from some very superficial

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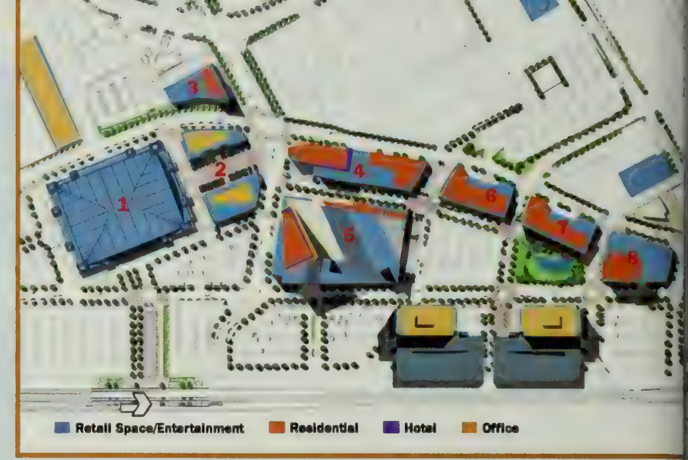
Dallas experiments with instant urbanism at Victory

Victory is a new, $3 billion community on the northern fringe of downtown Dallas, anchored by a sports arena and punctuated by high-rise condos, upscale hotels, boutique shops, and trendy eateries. This augustly named 75-acre project is neither a New Urbanist enclave nor a conventional mixed-use development, but an experiment in instant urbanism, Texas style.

"We wanted to create a place where people can live, work, and play, and never have to use an automobile," says Ross Perot, Jr., Victory's developer and son of the twangy, jug-eared presidential candidate of the 1990s. "Texans will never give up their cars completely, of course, but we've tried to create an attractive environment. It's going to be on the high end. Even if you rent, you'll have to be a professional to live here."

Victory launched in 1999 with the American Airlines Center, a retro Art Deco home for the Dallas Mavericks and Dallas Stars designed by David Schwarz. This arena legitimized a gritty brownfield site and helped lure other developers into the project, to which the city contributed $135 million in bond money. The initial scheme, by Palladium developers, proposed a series of low-rise buildings filled with traditional retail tenants. After Palladium bowed out of the project, Perot brought in Elkus/Manfredi, which proposed a new master plan that called for more height and more density—and not a big box among the 600,000 square feet of retailers and restaurants.

The W Dallas Victory and Residences (above left), by HKS, as seen from an outdoor plaza that developer Ross Perot, Jr., hopes will one day become Victory's "Times Square." **The House** (above), by Starck and Yoo, anchors a quieter square at Victory's southern end (left).



1. *American Airlines Center*
2. *Victory Plaza*
3. *Cirque*
4. *W Dallas*
5. *Victory Tower*
6. *The Vista*
7. *The Terrace*
8. *The House*

Perot wasted no time moving forward. Already complete is the W Dallas Victory and Residences, by HKS Architects, while Kohn Pedersen Fox's 43-story Victory Tower, containing a Mandarin Oriental hotel, is under construction. Rising nearby are a 28-story apartment tower called Cirque, by Gromatzky & Dupree, and two smaller apartment buildings. The House, a residential tower by Starck and Yoo, will break ground next year, bringing the total number of residential units to roughly 4,000.

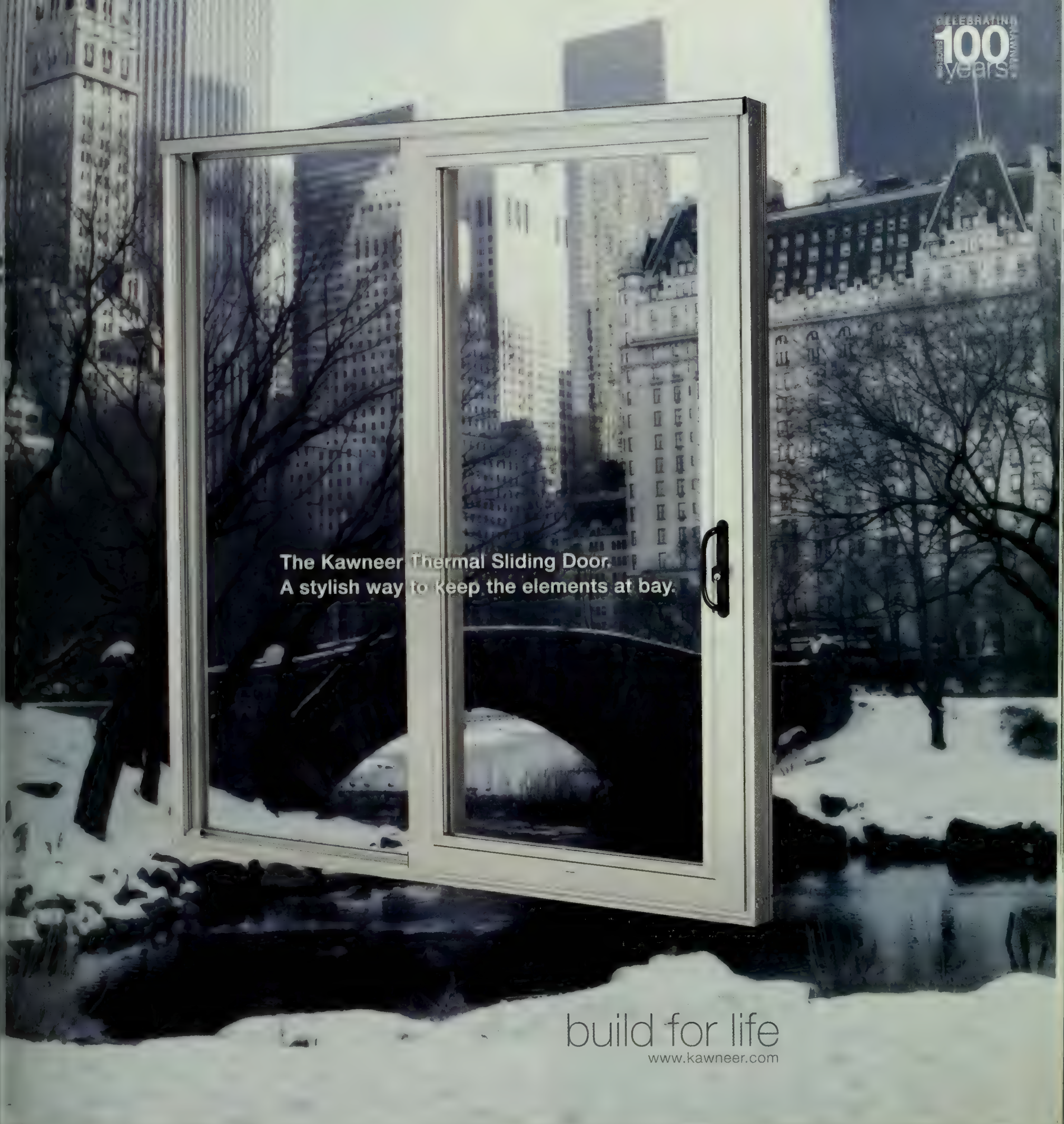
Instead of scattering Victory's program elements across the landscape like confetti, the usual Dallas way, planners grouped buildings into blocks that center around plazas or small parks—and they lined boulevards with ground-level shops and restaurants. These are basic urban concepts, yet so rare in Dallas as to seem exotic. The project's centerpiece is Victory Plaza, a large outdoor room in front of the American Airlines Center and framed by low, curving buildings covered with electronic billboards. Perot calls this space Victory's "Times Square," but its real lesson for Dallas is that it's a public space created by buildings, not in spite of them.

Perot and his partners describe Victory as a new "city within a city," but some observers worry that the project might hurt fragile redevelopment efforts nearby in downtown Dallas. "There is obviously a lot going on," says University of North Texas economist Bernard Weinstein, "but how many destinations can downtown support? A lot of bets are being placed, yet it's still a thin market."

Indeed, what's most impressive about Victory is not its density, but that the majority of buildings are being constructed all at once, rather than trickling out over decades. Perhaps only someone with Perot's financial resources could take a chance that this Victory will not be Pyrrhic.

"Come back in 10 years and Dallas will be a whole new city," he predicts. "With the price of gas and increased congestion, it's going to develop an East Coast, European lifestyle, where people will walk back and forth to work and then go out to the country for the weekend. I can see it already."

David Dillon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regional differences in iconography—Wild West in Nevada, Mediterranean in Florida, or Ye Olde in Massachusetts—lifestyle centers nationwide resemble each other just as much as malls do. A big reason is that nearly all of these properties are molded by the same lifestyle: one that boasts above-average income, is footloose, and more influenced by magazines and television than by local factors.

There are a handful of exceptions. The Lab, located in a converted factory building in Costa Mesa, California, opened in 1993 and is often cited as a pioneering center. It remains atypical in courting young people as customers, and its edgy design features artfully broken pavement, weedy plants, and other markers of apparent abandonment that affirm its self-proclaimed ambition to be "the anti-mall." This aesthetic is echoed across the street at The Camp, whose angular, metal-clad buildings and an irregular plan evoke the sense of adventure shared by the center's sports-oriented retail tenants. But most lifestyle centers are aggressively genteel in their style, promising a shopping environment undisturbed by teenagers.

La Encantada, a lifestyle center in the foothills outside Tucson, contains only retailers. But as one of developer Macerich's tony "Lumenati" properties—which supply shoppers with free bottled water as they stroll—its tenant roster includes upscale names such as Louis Vuitton and The Apple Store. Callison Architecture organized the 258,000-square-foot open-air property around a series of courtyards, while the architecture displays a Southwestern, Spanish-influenced vernacular.

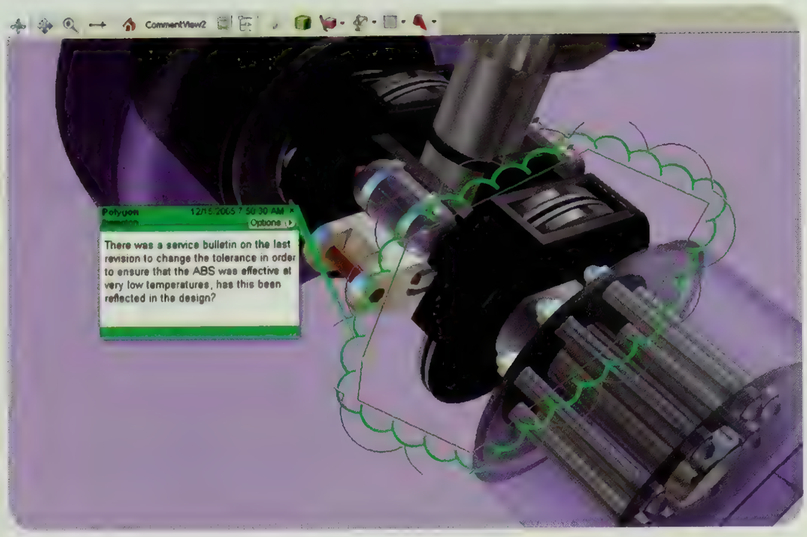
The traditional look of lifestyle centers means that they are far easier to plug into New Urbanist planning schemes than are inward-facing malls. Increasingly, developers are adding mixed-use components to these projects as later phases, or building apartments and offices above street-level retail shops. For instance, Crocker Park, in Westlake, Ohio, west of Cleveland, is currently operating as a 250,000-square-foot lifestyle center, with more than 60 stores and a dozen restaurants, all housed in buildings that share a watered-down Beaux-Arts aesthetic. But plans call for the development to grow to 1.7 million square feet, doubling its retail component and adding 250,000 square feet of offices and 900,000 square feet of houses and apartments. The premise, though largely untested, is that if you build the town center, then young professionals, boomer empty nesters, and others will arrive to create the town.

Santana Row, in San Jose, Calif., courts high-end retail tenants as well as upscale apartment dwellers and travelers. SB Architects designed a "neighborhood"—complete with streets, parks, civic plazas, shops, and apartment buildings—located above a 1,128-space parking garage. The project's eponymous main street bisects the property, containing many of its retail stores, while residences, a boutique hotel, and parking lots line a grid of smaller side streets.

There's no question that lifestyle centers look more like main streets, frontier towns, and village greens than traditional shopping malls did. Architects are becoming increasingly adept at making three or four big boxes look like several dozen smaller ones. And while malls often sought to replace the old urban downtown, lifestyle centers typically seek a cozy, small-town feel. This is an easier kind of urbanism to achieve and one that may be needed in many exurban areas that grew rapidly without any centers of civic or commercial life. Still, as lifestyle centers become ubiquitous, there will be many cases where they threaten real examples of the hometown American urbanism they strive so hard to emulate.

For the moment, the lifestyle center is not necessarily a problem or a solution. It is little more than a winning retail development formula—one that solves problems for developers and tenants, and saves time for consumers. As long as its success is judged solely on sales, though, such a development can never be a real place, let alone a town center. Nobody can spend $84 an hour forever. ■

PHOTOGRAPHY: © CALLISON/CHRIS EDEN (TOP); JAY GRAHAM (BOTTOM)



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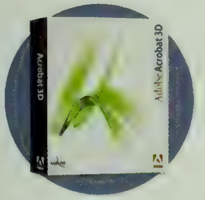

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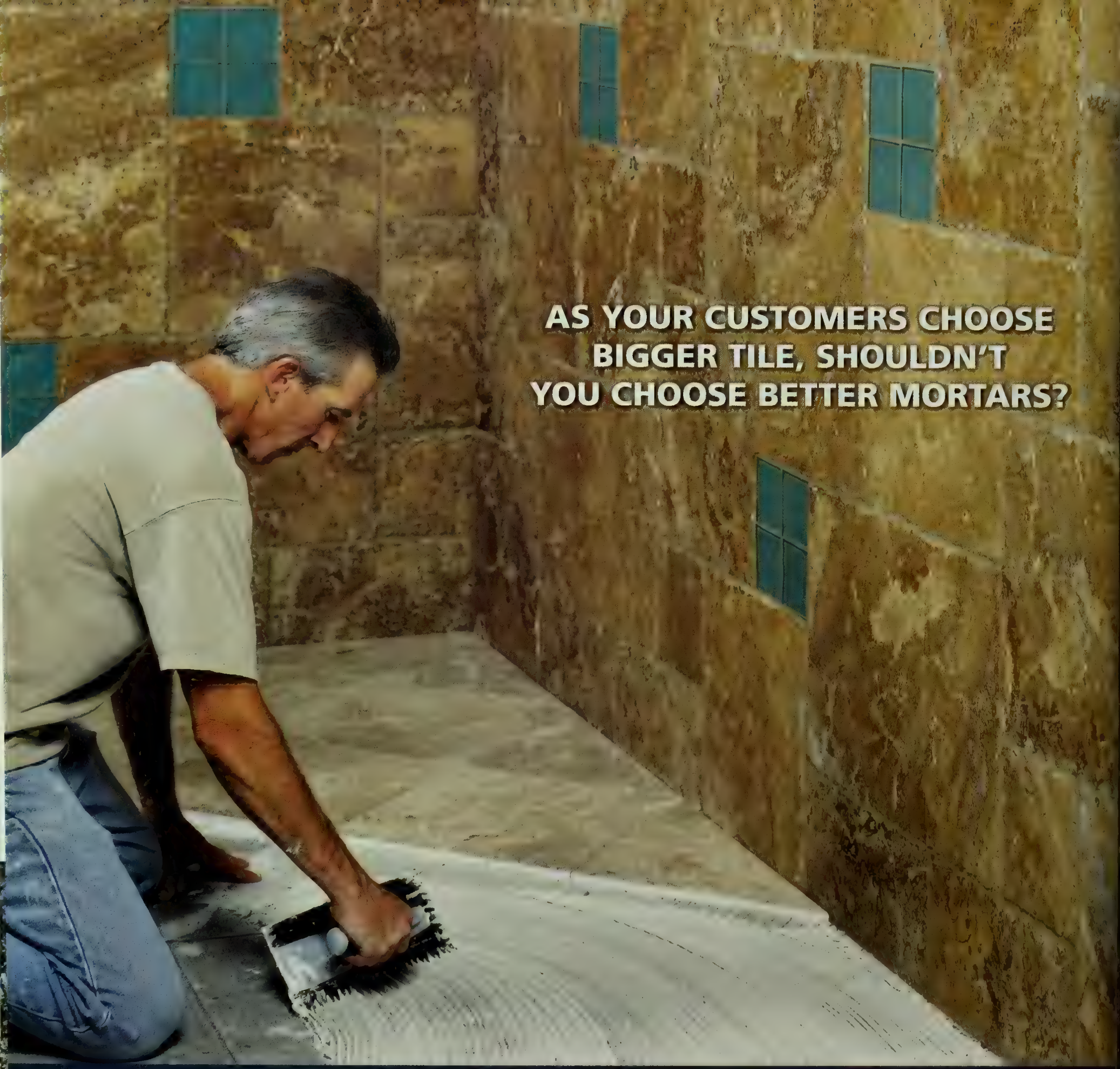

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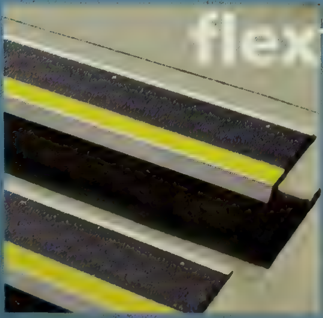

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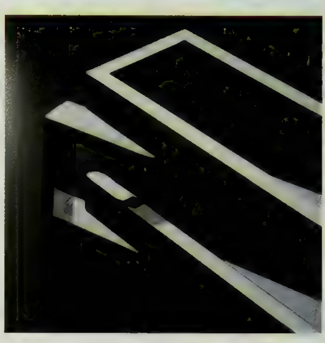

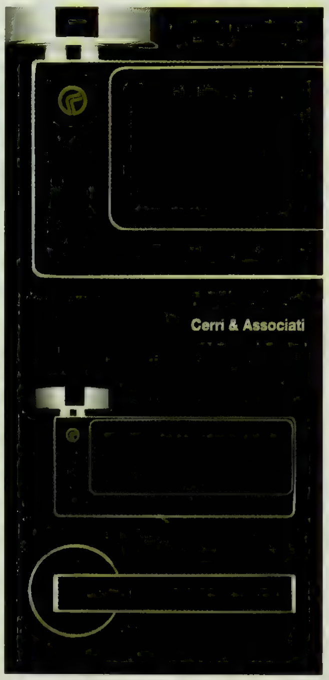

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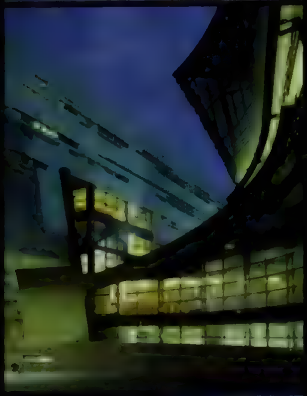
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The All-American Issue

The North American continent presents a crossroads of diverse people, places, and architecture

At one point in our collective lives, the term *All-American* meant specific, recognizable things: a saturated, mythic version of America, circa 1952, featuring Virginia Mayo (and football boyfriend, Ronald Reagan), working her way through college, set against the Georgian backdrop of a New England fallscape. Today, when the drive-in theater has closed and Apple is on the verge of announcing iTV, America refers to more than the United States. What meaning, in 21st-century terms, can we derive from the term *All-American*?

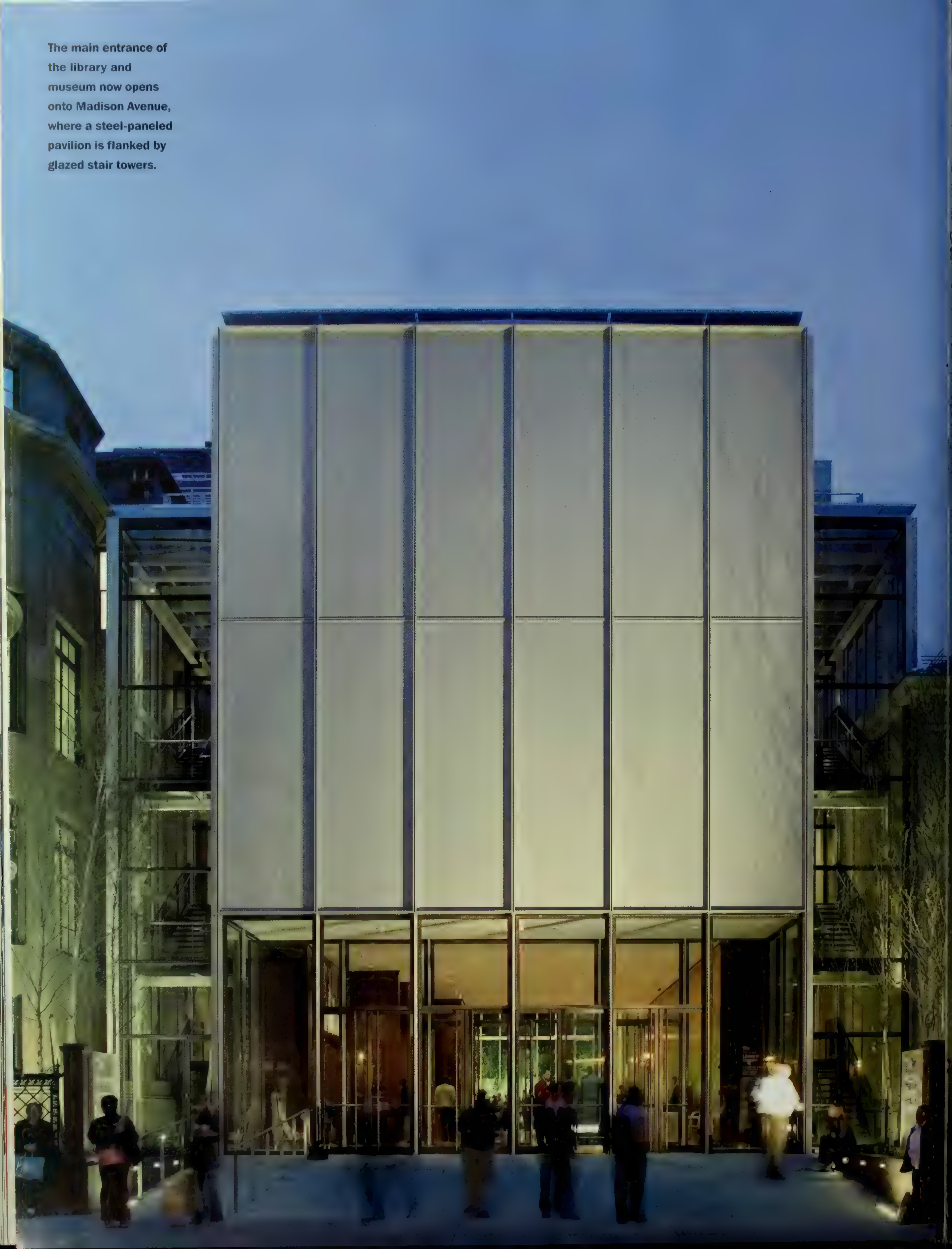
Clearly, the North American continent has become more of a cultural crossroads than an insular village center. As much as we might long for the prescribed village that formed the core of small-town life, the concept of a crossroads—digital, physical, cultural—might more aptly apply today to our contemporary civilization. Sophisticated architectural projects regularly engage designers from outside our borders, as did the expansion of the Morgan Library in Manhattan, which paired the European-based Renzo Piano Workshop with the New York firm Beyer Blinder Belle.

As strongly as in the 1950s, we still revere higher education. The University of Cincinnati features no stylistic hegemony, however, and its student center designed by Morphosis falls into no discernible style, serving instead as a nexus, anchoring the master plan of this ambitious urban campus. Situated adjacent to both stadium and student housing, the center thereby expands campus life for the university's polyglot, international student body. By contrast, the Luxembourg-born architect Leon Krier, with associated firms, expanded the University of Miami's stucco vernacular for a broader interpretation of the familiar South Florida language. The stability and continuity of older traditions thus evolves through architectural language.

Two libraries make radically different statements on continental American extremes: in Montreal, Patkaus Architects led a team that created soaring interior space with simple concrete and wood, defining the rudiments of a Canadian (and, by extrapolation, larger North American) architecture. By contrast, the decidedly modest library and community center in Phoenix by Gould Evans and Wendell Burnette, set in a largely Hispanic, lower-income quadrant of Phoenix, declares that the continent remains big enough to accommodate all its citizens, whatever their origin or current status.

What does *All-American* mean today? Read the whole issue and you will encounter Hispanic and Canadian, plutocrats, and college students. We're all these things, and more: a continent at the crossroads. ■

1. Morgan Library and Museum
2. University of Cincinnati Campus Recreation Center
3. Jorge M. Perez Architecture Center
4. Grande Bibliothèque
5. Palo Verde Branch Library and Maryvale Community Center



The main entrance of the library and museum now opens onto Madison Avenue, where a steel-paneled pavilion is flanked by glazed stair towers.

Renzo **Piano** alters the character of New York's **MORGAN LIBRARY AND MUSEUM** with a new entrance and a skylit court

y Victoria Newhouse

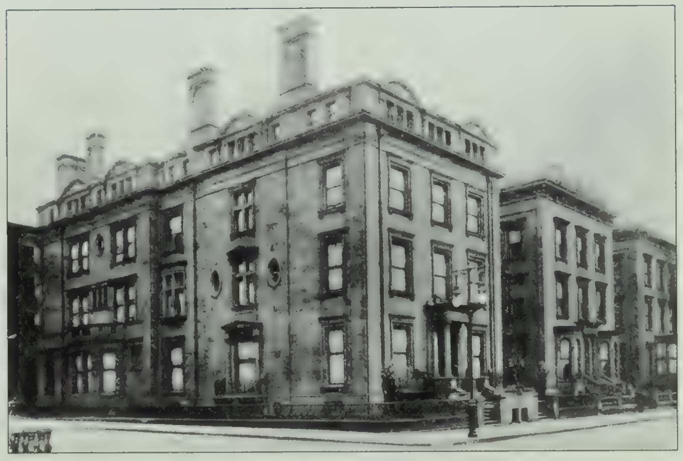
Renzo Piano has become the architect of choice for art museums today. Since the acclaimed Centre Georges Pompidou in Paris (with Richard ogers, 1977), he has completed 10 museum rojects and has five more in progress. His exhiition spaces have been characterized as serene, ever competing with the art in them, and his bility to control daylight has become neargendary. Now the idiosyncrasies of museum xpansion make it more difficult for the archiect to live up to this standard.

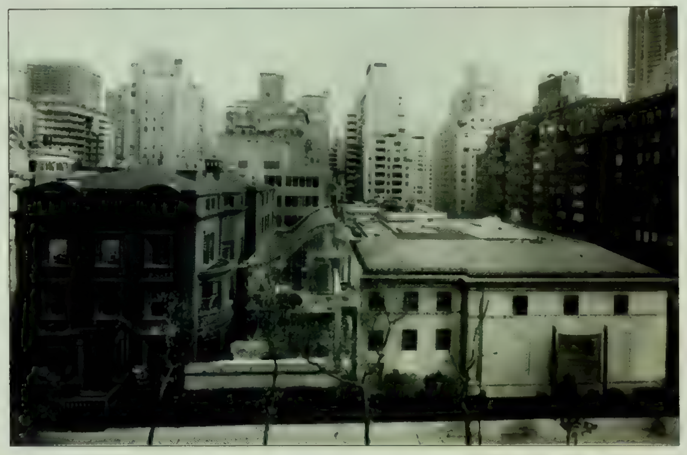
The recently opened Morgan Library nd Museum in New York, with Beyer Blinder elle as executive architect, and shortly before it e High Museum of Art in Atlanta, with Lord, eck & Sargent [RECORD, November 2005, page 130], are the first two ajor museum expansions by the Renzo Piano Building Workshop. The wo projects demonstrate how varied the intentions for such undertakgs can be, and consequently how different the results.

The Morgan trustees wanted the same kind of popular facilies currently favored by large, public museums, which in its case ended p occupying 75,000 square feet and costing $106 million. In order to dd a 280-seat auditorium, new storage vaults, more galleries, a new eading room, an enlarged store, a café, and a fancy restaurant, far too uch was crammed into this tight, 42,314-square-foot site. Considering he trustees' reluctance to build a tower, Piano tackled the problem by xcavating 65 feet below ground for the auditorium and new state-ofhe-art storage. Above ground, Beyer Blinder Belle handled restorations nd renovations; Piano executed the additions with his usual elegance, ut in the process turned this historic house museum into a conventonal, purpose-built museum.

In Atlanta, Piano responded to the High's request for an addiional 177,000 square feet of galleries for contemporary art next to ichard Meier's 1983 Modernist building by producing a handsome ew cultural campus at a cost of $110 million. Piano's two pavilions for

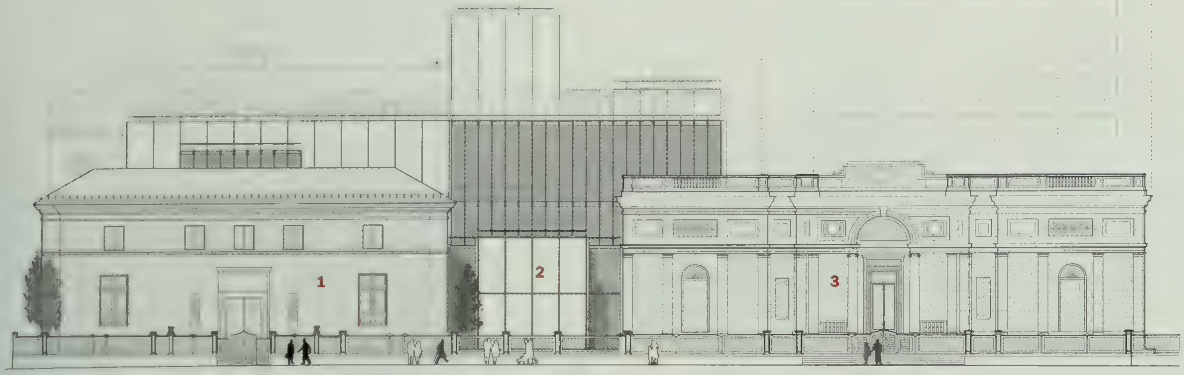
Of the three brownstones on Madison Avenue J.P. Morgan acquired between 1880 and 1904 (right), only one, where his son J.P., Jr., lived, is still standing at the corner of 37th Street. By 1993, Voorsanger & Mills's garden court (below right) linked the brownstone to the annex, designed by Benjamin Wistar Morris in 1928.



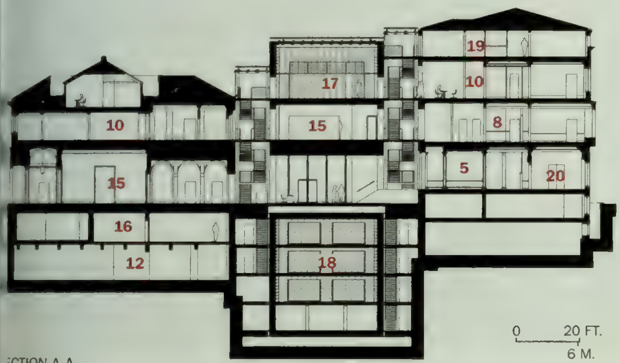


Project: *Morgan Library and Museum, New York City*
Design architect: *Renzo Piano Building Workshop—Renzo Piano, Giorgio Bianchi, Thorsten Sahlmann, Kendall Doerr, Yves Pages, Mario Reale, Alex Knapp, design team*
Executive architect: *Beyer Blinder Belle Architects—Richard Southwick, partner in charge; Michael Wetstone, project manager; Rob Tse, project architect (new building); Frank Prial, project architect (historic buildings); Yuri Suzuki, Joe Gall, Meghan Lake*
Engineers: *Robert Silman Associates (structural); Cosentini Associates (m/e/p)*
Consultants: *H.M. White Site Architects (landscape); Ove Arup and Partners (lighting); Kahle Acoustics and Harvey Marshall Berling Associates (acoustical); Front, Inc. (exterior envelope); Jablonski Berkowitz Conservation (conservator); Imbrey Culbert (exhibit design); Pentagram (signage and graphics)*
Project director: *Paratus Group*
Construction manager: *F.J. Sciame Construction Company*

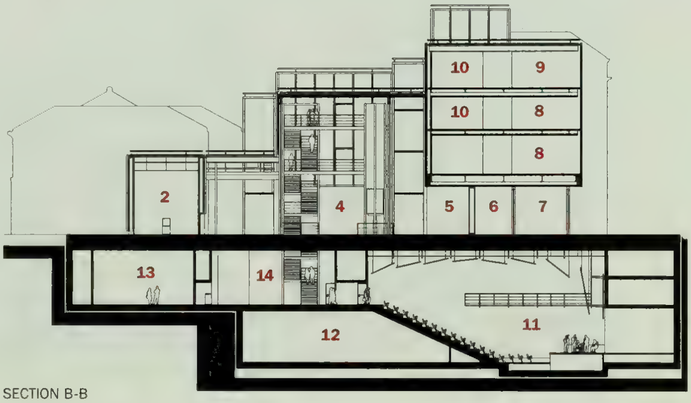
ictoria Newhouse is an architectural historian whose revised and expanded 1998 ook Towards a New Museum *will be published by Monacelli Press this October.*



SOUTH ELEVATION



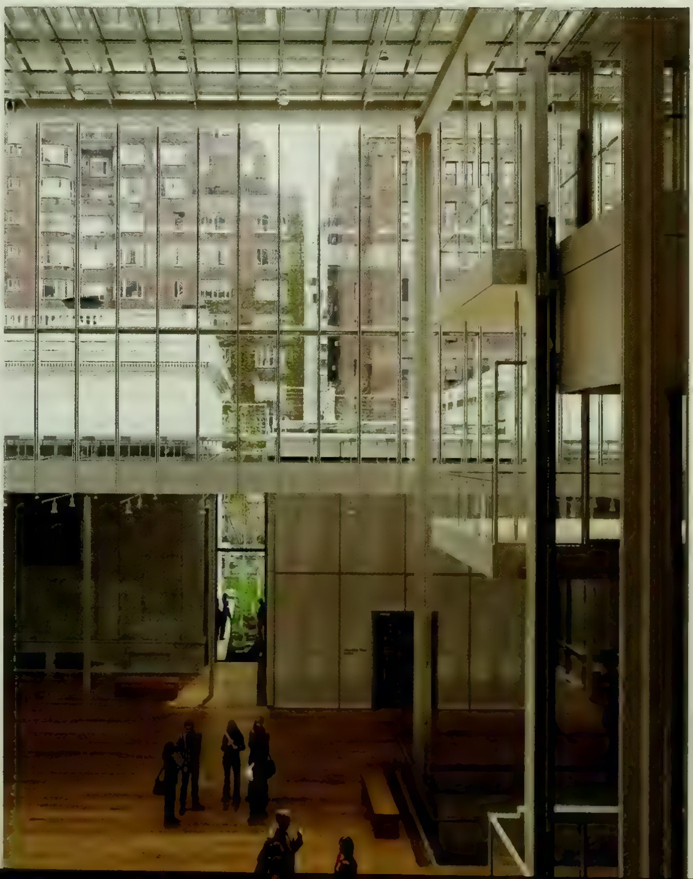
CTION A-A

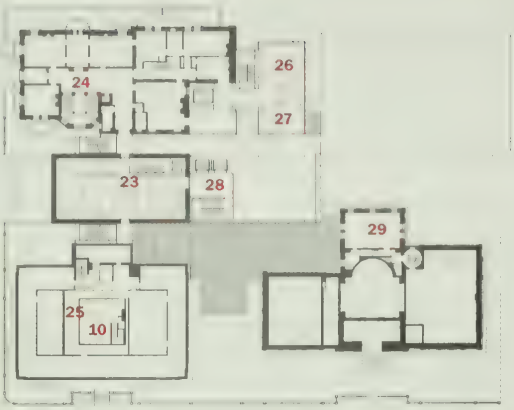


SECTION B-B

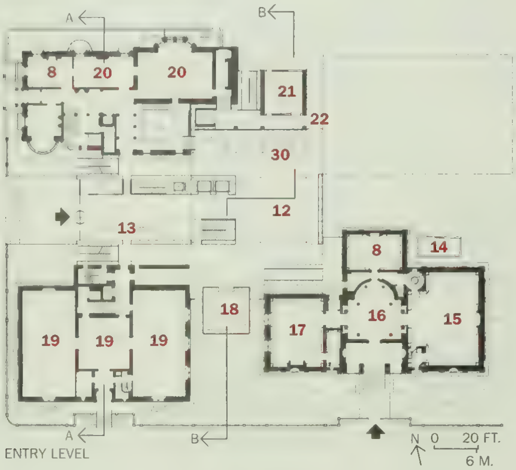
. *Annex, 1928*
. *The exhibition "cube"*
. *McKim, Mead and White library*
. *Central court*
. *Café*
. *Staff entrance*
7. *Loading dock*
8. *Administration*
9. *Bindery*
10. *Offices*
11. *Performance hall*
12. *Mechanical*
13. *Public programs*
14. *Lobby/gallery*
15. *Exhibition*
16. *Stacks*
17. *Reading room*
18. *Compact vaults*
19. *Conservation*
20. *Retail*

iano designed a
ubic exhibition space
t center of top
levation) to link the
riginal library, by
harles McKim of
cKim, Mead and
hite (right in eleva-
on) to the 1928
nnex, by Benjamin
istar Morris (left in
levation). The use of high-transparency low-iron glass in the center court (right and opposite) reveals glimpses of the historic structures. To keep from adding too much height to the complex, Piano placed the performance hall and storage 65 feet below grade (sections above).

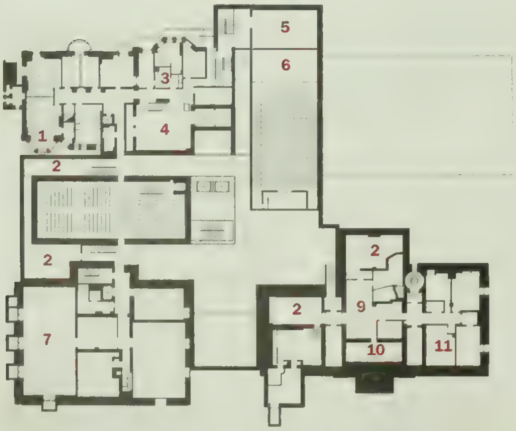




LEVEL THREE



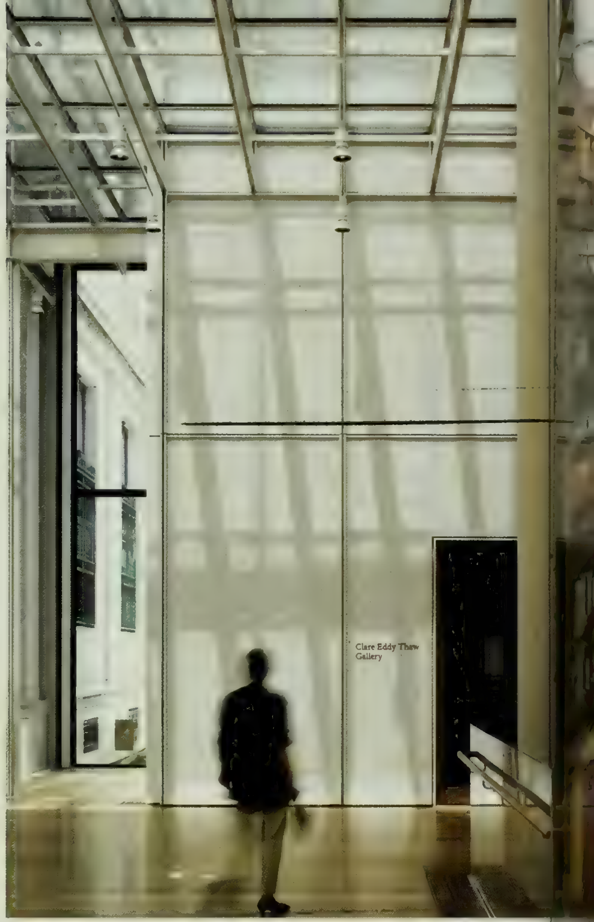
ENTRY LEVEL

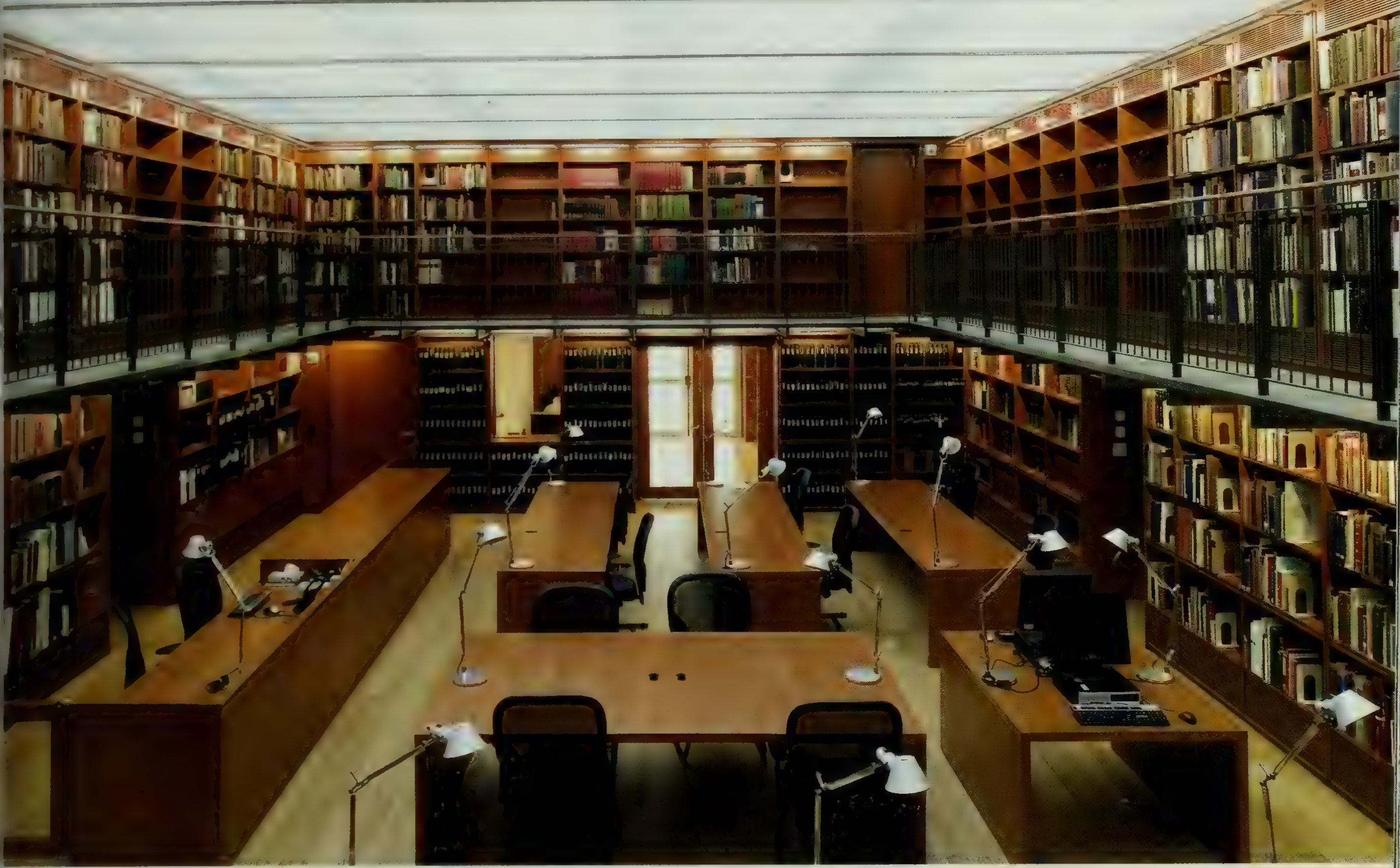


BASEMENT LEVEL ONE

1. *Staff lockers*
2. *Mechanical*
3. *Security*
4. *Food service*
5. *Backstage*
6. *Performance hall*
7. *Reference stacks*
8. *Public programs*
9. *Caterers/swing space*
10. *Storage*
11. *Photography*
12. *Central court*
13. *Information/tickets*
14. *Emergency generator*
15. *McKim library*
16. *McKim rotunda*
17. *J.P. Morgan's study*
18. *Exhibition "cube"*
19. *Renovated gallery*
20. *Shop*
21. *Loading dock*
22. *Staff entrance*
23. *Reading room*
24. *Cataloging*
25. *Publications*
26. *Registrar*
27. *Computer office*
28. *Balcony*
29. *Retail offices*
30. *Café*

Piano created a cubic gallery for an exhibition space to be entered from the central court (right). The court, like an Italian piazza, links the historic structures (below right), restored and renovated by Beyer Blinder Belle.





A new reading room now occupies the top (third) floor of the entrance pavilion, where Piano's well-known top lighting softly emanates through the wood-paneled space. The former reading room in the 1928 annex was turned into a gallery.

t and one for administration maintained, en strengthened, the High's identity.

In both cities, Piano linked new glass-d-steel structures with existing architecture, in ch case reoriented around a central piazza. For th he used similarly scaled, rectangular, off-hite metal panels for cladding. The material is ideal complement to Meier's square, baked-amel panels. It makes a less perfect marriage ith the masonry buildings in New York.

The Morgan, located in a residential area near Midtown anhattan, presented Piano with the challenge of accommodating three ndmark buildings: the marble 1906 library designed for the banker J.P. organ by Charles McKim of McKim, Mead and White, which faces 36th reet; the more subdued 1928 marble annex modeled after it by enjamin Wistar Morris on the corner of 36th Street and Madison venue; and the brownstone mansion on Madison Avenue and 37th reet built in 1852 by Isaac N. Phelps Stokes of Phelps Dodge & Co., here Morgan's son and his family later lived. Piano joined the three by eans of a 52-foot-high enclosed central atrium, inserted a 20-foot-high ube between the two 20th-century buildings, added a four-story office uilding on 37th Street with a loading dock at its base, plus the entrance avilion with exhibition space on the second floor and a new reading om on the top.

The Morgan's directors gave Piano permission to eliminate all ost-1928 additions to the complex, notably those completed by Voorsanger & Mills in 1991, which joined the old library buildings to the brownstone with a small garden court topped by a wave-shaped glass vault [RECORD, January 1992, page 98]. Although this court lacked the drama of Piano's atrium, it had considerable charm and the merit of retaining the museum's original entry on 36th Street, through the annex.

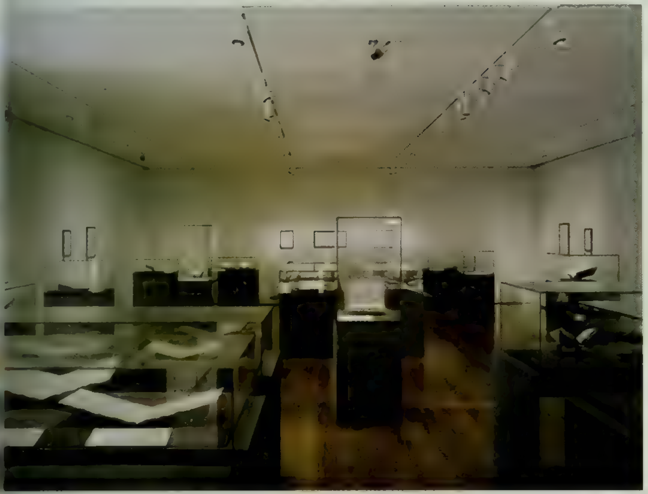
Piano's atrium holds the new complex together. Because most of the Morgan's possessions are sensitive to ultraviolet rays, daylight is limited to just one gallery: the small, top-lit cube. The library's collections of rare books, manuscripts, and drawings are shown in rooms suffused with subdued, electrically generated light. About all that can be said of them is that they are well-proportioned and fulfill their function competently. More interesting is the new reading room with Piano's signature museum-type top lighting.

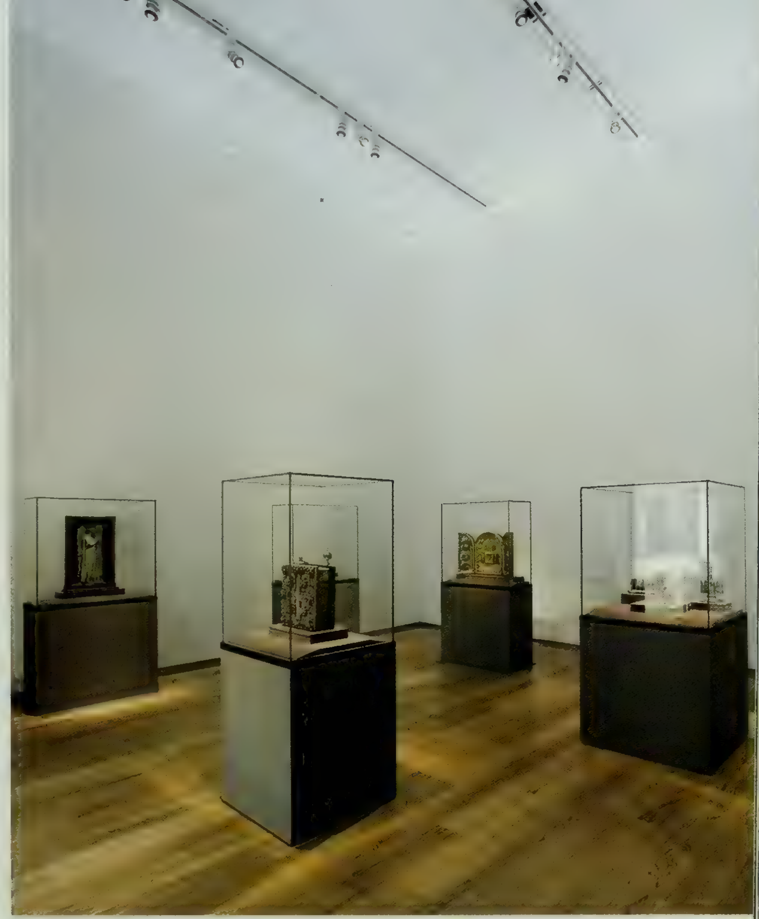
> **IT IS NOT A GALLERY, BUT THE LOFTY CENTRAL GATHERING PLACE THAT DEMONSTRATES PIANO'S SKILL WITH DAYLIGHT.**

So it is not a gallery, but rather the lofty central gathering place that gives the best demonstration of Piano's skill in handling daylight and creating a memorable space. As stunning as it is, however, the atrium belongs to the typology of the Modernist museum and is alien to this once-private enclave. It is, in fact, just a smaller, although admittedly more accomplished, version of the endless series of mega-entrance lobbies, all inimical to art, that began in 1978 with I.M. Pei's East Wing of the National Gallery in Washington, D.C., and was repeated by Pei at the

The 52-foot-high central court makes the most of glass—including elevators, stair risers, and skylights (right)—in order to create a light-filled space with glimpses of the surrounding neighborhood, such as the 1950 apartment house by Emery Roth next door. The performance hall (below), lined in curved baffles of cherry wood, was created by blasting 65 feet into bedrock.

In the 20-foot-cube gallery between the old McKim library and the 1928 annex, Piano designed a top-lit gallery (right) for metalwork sculpture and enamels. It is characterized by the soft luminosity that distinguishes Piano's previous museums.





A new gallery for rare manuscripts is located on the entrance pavilion's second floor (above left). Architects Imbrey Culbert were in charge of exhibition design.

uvre in Paris (1989), by Herzog & de Meuron the Tate Modern in London [RECORD, June 00, page 103], by Tadao Ando at the Modern t Museum of Fort Worth [RECORD, March 2003, ge 98], and by Yoshio Taniguchi at the Museum Modern Art in New York [RECORD, January 04, page 94]. Each one of these designs sets a corporate rather than a cul- ral tone and contributes to what threatens to become a homogenization the art experience.

In the past, visitors to the Morgan entered through the main trance of the 1928 annex on 36th Street and into its marble hall, mediately immersing visitors in Morgan's own special world and his gacy. Even the slight awkwardness of the entryway and of circulation nerally within the complex made people feel they had privileged access a highly individual inner sanctum of the legendary tycoon.

Now you enter from Madison Avenue, through a low-ceilinged trance sheathed in warm cherry-wood and then into a cool, glass-and- eel box, one side of which is densely packed with the café's tables and chairs ongside two Portmanesque glass elevators. Thus, instead of the mysterious arm of a historic interior, museumgoers are greeted by the smell of food d the sight of a lot of people eating. Access to Mr. Morgan's study and rary and to the galleries seems like an afterthought, almost hidden in two rners. Regrettably, the Morgan has succumbed to the current trend of lowing crowd-pleasing attractions like food facilities to upstage exhibition aces, exemplified recently by the new wing at the Reina Sofía Museum in adrid by Ateliers Jean Nouvel [RECORD, July 2006, page 84].

At the Morgan, scale is not the issue: Piano has proportioned the steel cladding panels and glass mullions of the inserts to discreetly integrate them with the historic architecture. And the three older buildings still read as separate houses thanks to the glazed open spaces between them and their new linkages. By substituting glass risers for the usual opaque ones on security stairs that would otherwise have blocked views into and out of the atrium, Piano preserves the transparency for which he is famous.

This transparency was especially appealing to the Morgan's board members who wanted to make the institution more welcoming. Charles E. Pierce, Jr., director since 1987, says that visitors were formerly "kept at arms' length." Now he feels that the new openness of the complex "makes it part of the life of the city." But in its effacing of the Morgan's historic identity by greeting the public in the manner of innumerable conventional museums, something of New York's institutional diversity has been lost. Hopefully there will be no similar loss of identity when Piano adds a freestanding wing (due about 2011) to the Isabella Stewart Gardner Museum in Boston. ■

Sources

Steel cladding, curtain wall, skylight system: *Josef Gartner & Co.*

Fire-rated glass partitions, doors: *Technical Glass Products*

Demountable interior partitions: *Tecno*

Paints and stains: *Benjamin Moore*

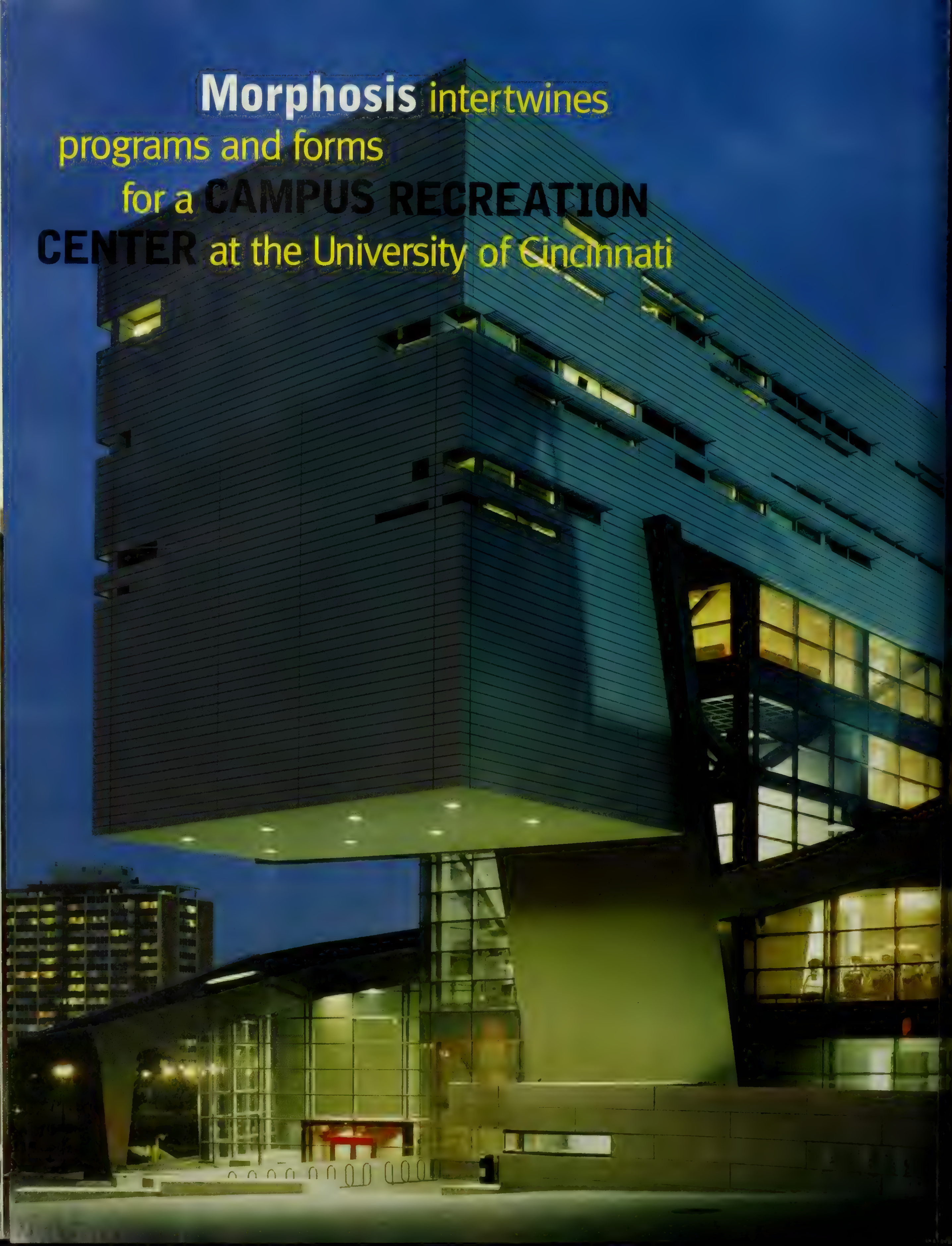
Wood doors, cabinet and custom woodwork: *Bauerschmidt &Sons*

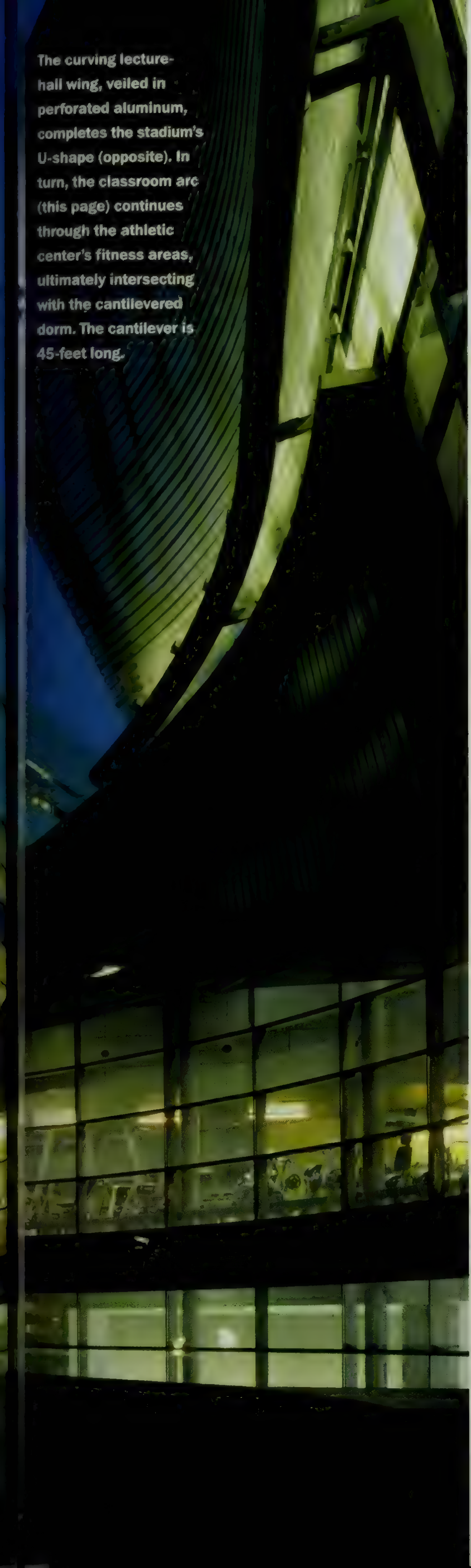
Wood flooring: *Haywood Berk*

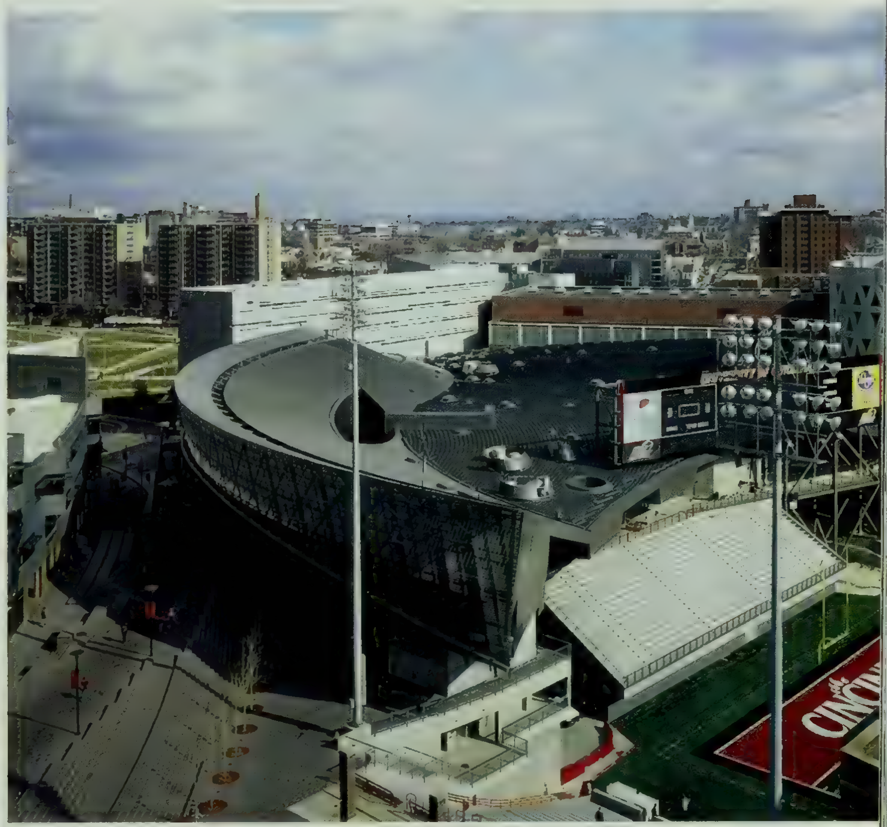
Lighting controls: *Lutron*

For more information on this project, go to Projects at **www.archrecord.com**.

Morphosis intertwines programs and forms for a CAMPUS RECREATION CENTER at the University of Cincinnati




The curving lecture-hall wing, veiled in perforated aluminum, completes the stadium's U-shape (opposite). In turn, the classroom arc (this page) continues through the athletic center's fitness areas, ultimately intersecting with the cantilevered dorm. The cantilever is 45-feet long.



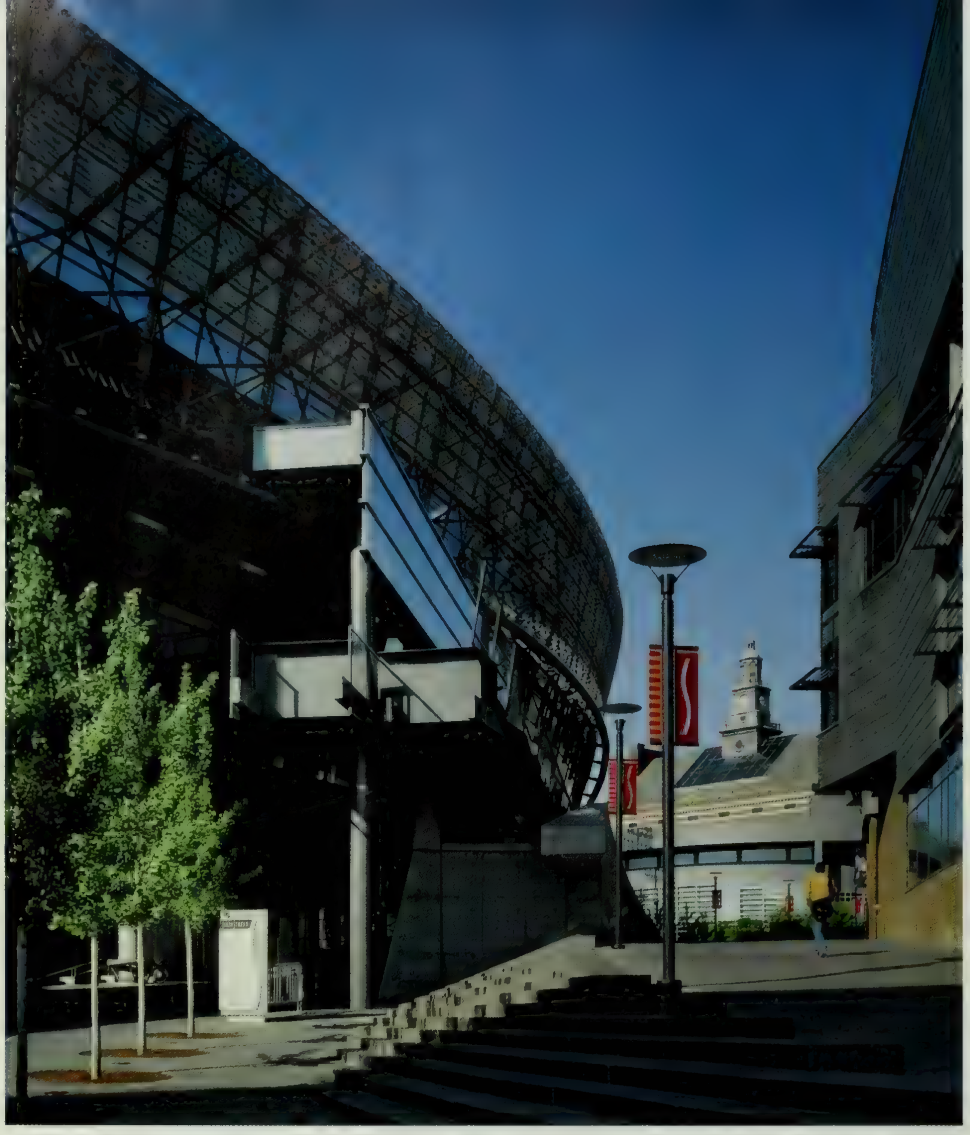
By Sarah Amelar

With the muscular body of an athletics compound, the slit-eyed head of a dorm, the diaphanous wings of a swarm of lecture halls, and the robust belly of a food court, the University of Cincinnati's new Campus Recreation Center is a chimera of a building. And if that mix—with juxtapositions as unexpected as a Surrealist's "exquisite corpse"—were not complex enough, the 350,000-square-foot facility morphs slightly wherever its contrasting "body parts" touch one another or meet such adjacencies as, say, an existing football stadium wedged up against them.

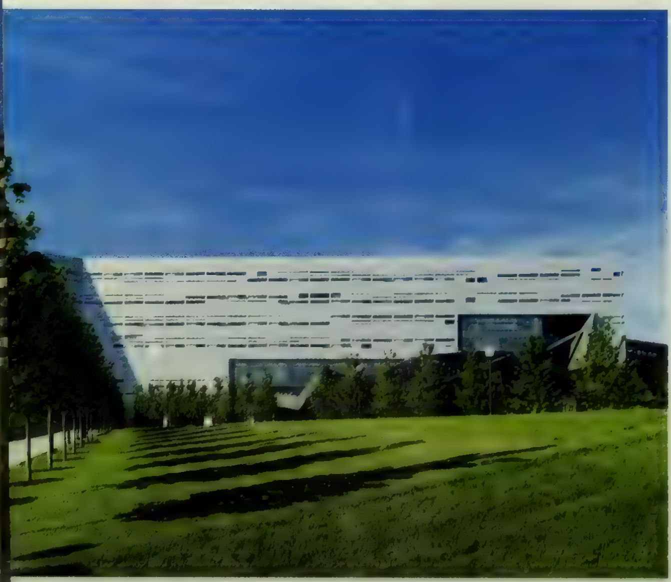
"I've always needed contingencies to respond to," says architect Thom Mayne, who with his firm, Morphosis, designed the center. "Even in my earliest work," he adds, "I've been interested in attacking homogeneity." And here, more than in any of the studio's previous projects, the immediate surroundings—primed for the diversity, movement, and encroachments of city life—had an urban potential that Mayne not only helped define, but also deliberately intensified.

Six years ago, when Morphosis, along with the local firm of KZF Design, took on the commission, the site's urban character had not fully

Project: *University of Cincinnati Campus Recreation Center*
Design architect: *Morphosis—Thom Mayne, FAIA, principal; Kim Groves, project manager; Kristina Loock, project architect; Ben Damron, project designer; Henriette Bier, Ted Kane, Silvia Kuhle, Eric Nulman, Martin Summers, Brandon Welling, project team*
Executive architect: *KZF Design—Donald Cornett, AIA, principal; William Wilson III, AIA, project manager; Dale Beeler, project architect*



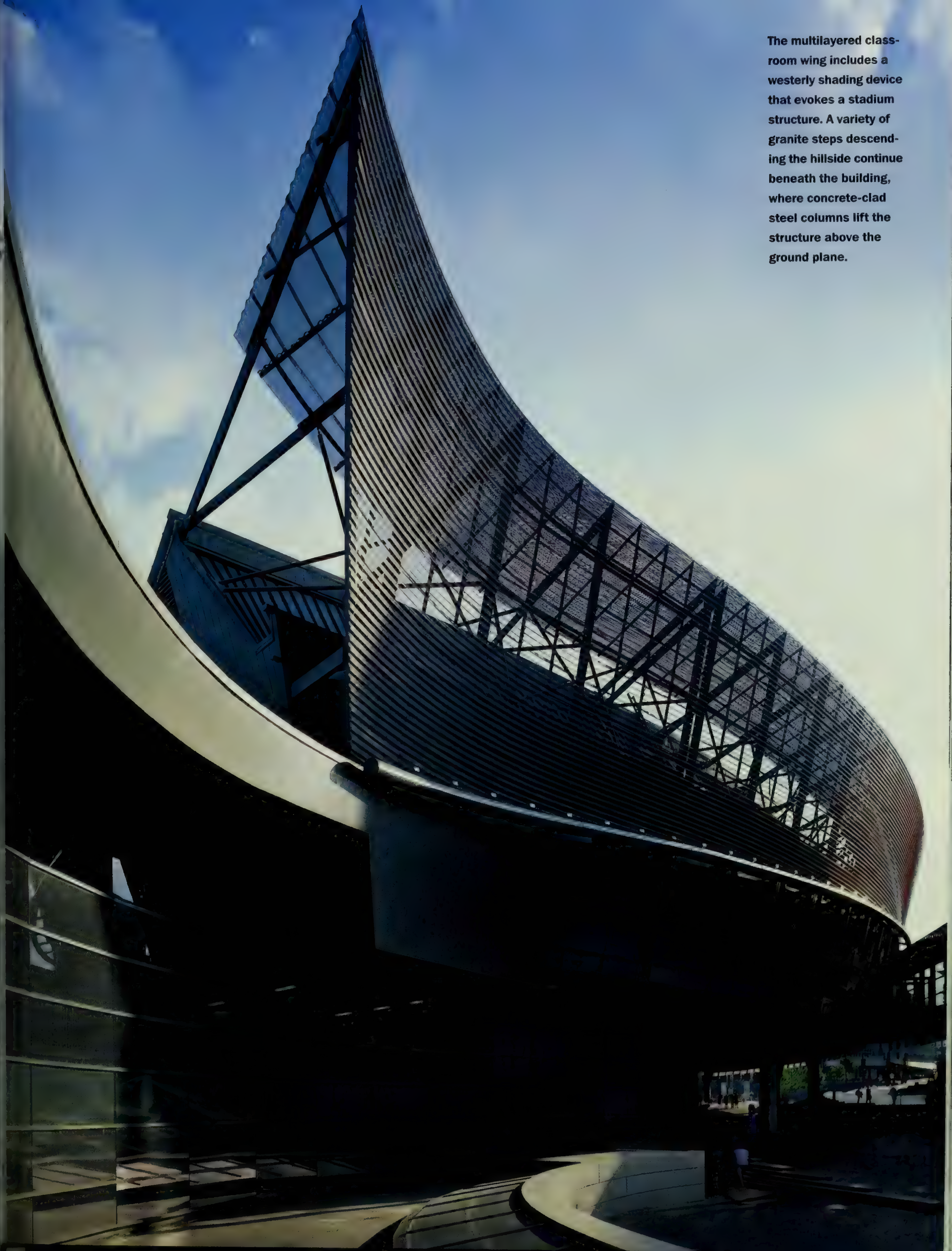
Morphosis intentionally brought its structure close to Moore Ruble Yudell's Steger Center, a new sliver of a building, in order to pinch the street tightly, funnel pedestrian flow, and concentrate the urban density (left). Hargreaves's rhythmic lines of trees lead up to the aluminum-clad dormitory block (below). The housing bar's great folded plane—"augmented ground," as Mayne calls it—visually and conceptually extends the landscape's contours.



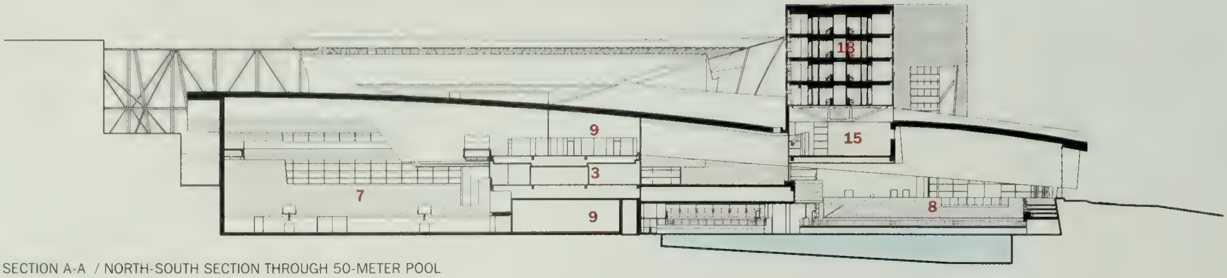
evolved, and the brief called for just an athletic center, without any classrooms, dormitory, or dining hall. But even then, this project was poised a a key piece in the 15-year campaign to remake the 200-acre campus an turn it from a lackluster commuter domain, overrun with parking lots into a vibrant, architecturally distinguished, 24/7 student venue. (Today the school, dating from 1819, has an enrollment of approximately 35,000.

With such ambitions, the university gradually imported a cast o marquee architects, including Peter Eisenman, Michael Graves, Charle Gwathmey, and (for its adjacent medical campus) Frank Gehry, commissioning each to design a single building. While the desire to embrace stron design was laudable, the results of the first phases were mixed. Critic Blai Kamin of the *Chicago Tribune* recently wrote: "What this really produce was a lot of publicity and a kind of architectural petting zoo, in which buildings were plopped down, much as they would be in a suburban office park.

The threads that wove it all together came from the full realizatio of landscape architect George Hargreaves's master plan, and by no sma measure, from Morphosis's interpretation of his larger concept. Not onl does the building give the campus a nexus, but like much of the master pla it provides what both Hargreaves and Mayne dub "connective tissue," drawing together disparate parts of a domain that developed piecemeal, if no



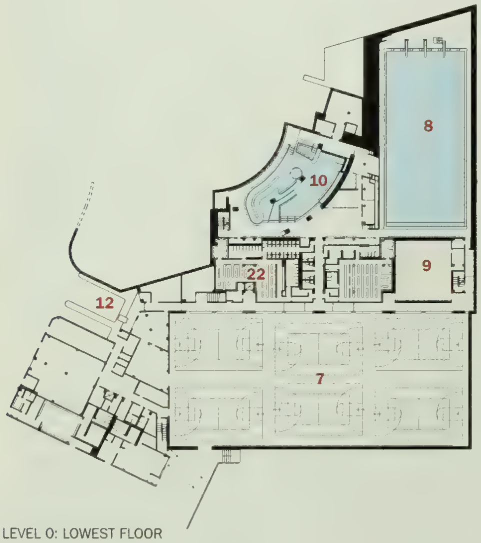
The multilayered classroom wing includes a westerly shading device that evokes a stadium structure. A variety of granite steps descending the hillside continue beneath the building, where concrete-clad steel columns lift the structure above the ground plane.



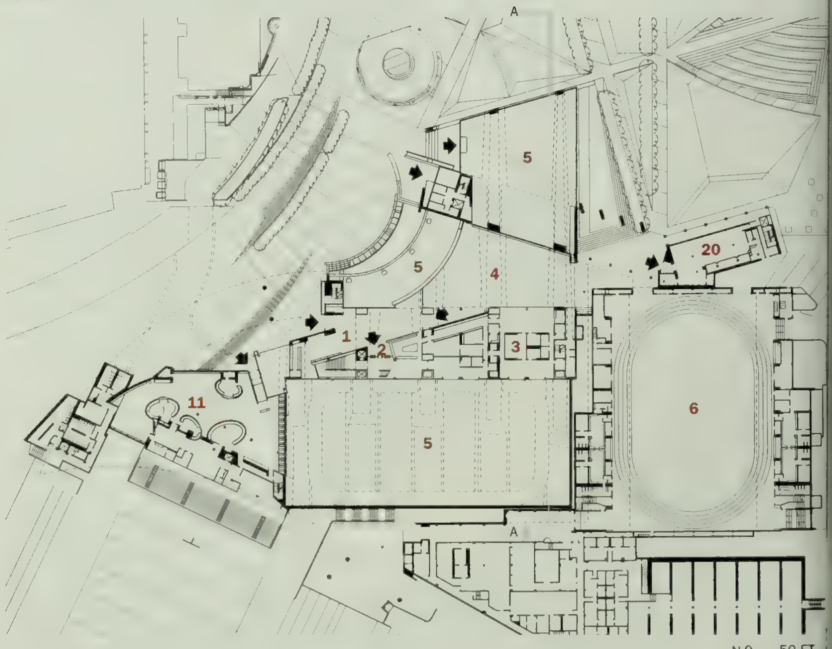
SECTION A-A / NORTH-SOUTH SECTION THROUGH 50-METER POOL

1. *Athletics lobby/ public passage*
2. *Athletics checkpoint*
3. *Administrative*
4. *Exterior plaza*
5. *Open to below*
6. *Armory Fieldhouse (existing)*
7. *Gym/basketball*
8. *50-meter pool*
9. *Multipurpose*
10. *Leisure pool/spa*
11. *Marché food court*
12. *Loading dock*
13. *Classrooms' lobby*
14. *Weight training*
15. *Fitness*
16. *Squash*
17. *Racquetball*
18. *Student housing*
19. *New bleachers*
20. *Convenience store*
21. *Small lecture hall*
21. *Changing rooms*

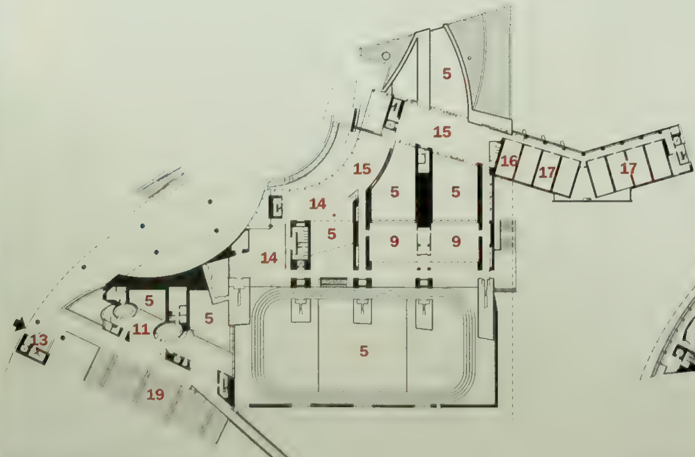
Both the plans and section reveal complex juxtapositions and the skillful melding of what might otherwise have been jarring adjacencies in scale and program.



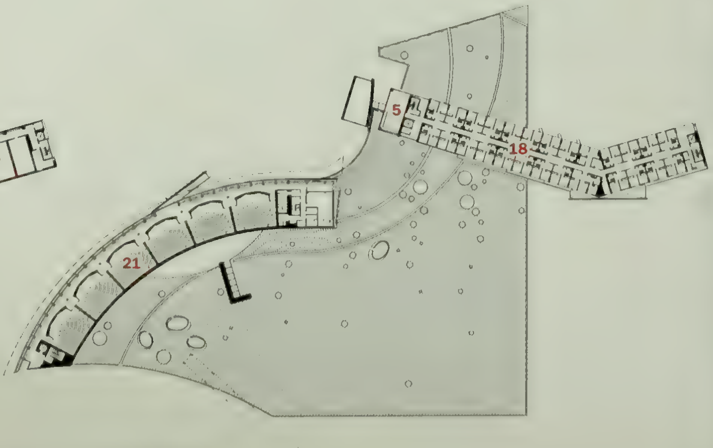
LEVEL 0: LOWEST FLOOR



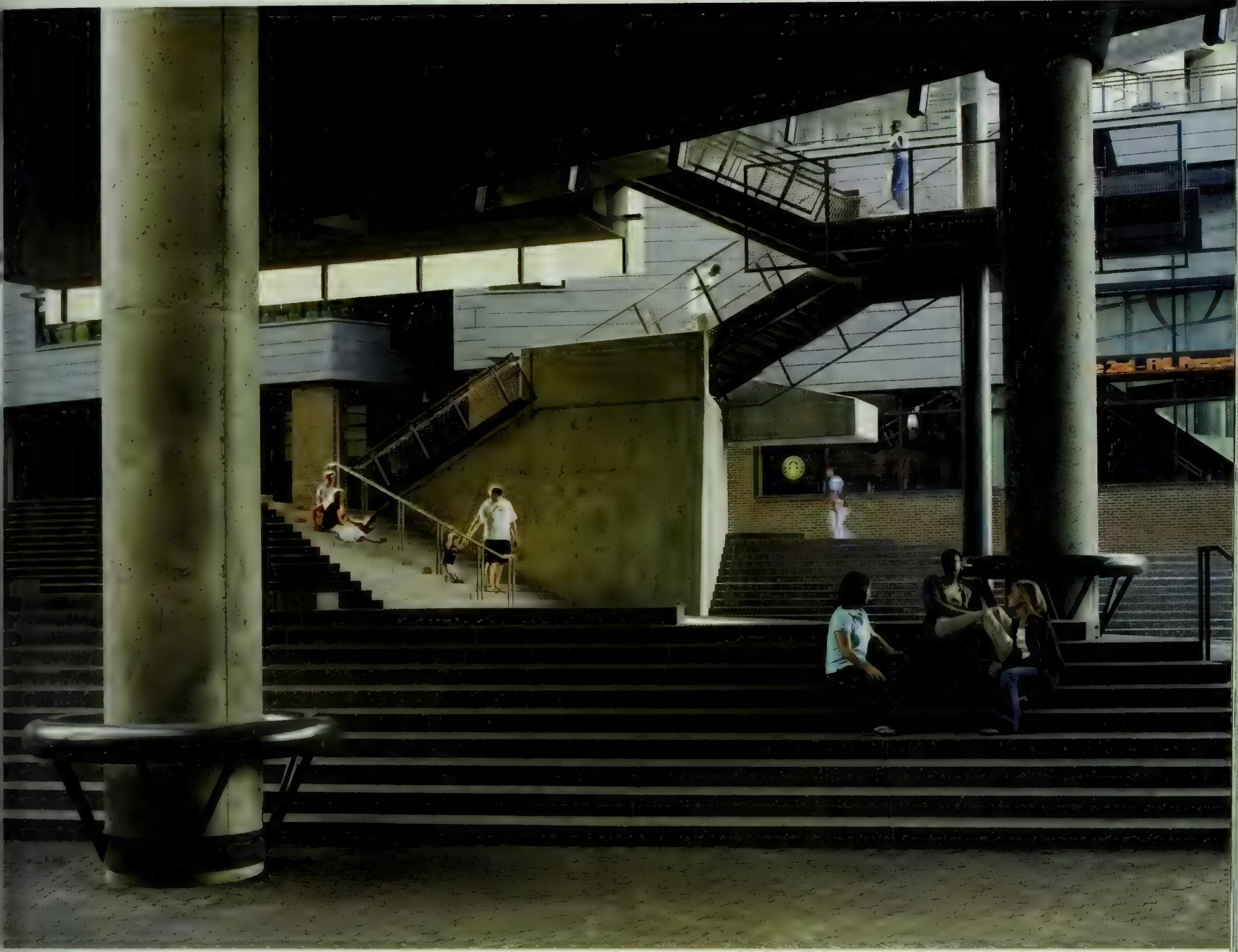
LEVEL 1: MAIN FLOOR



LEVEL 2: ATHLETIC CENTER'S TOP FLOOR



LEVEL 3: ATHLETIC CENTER ROOF

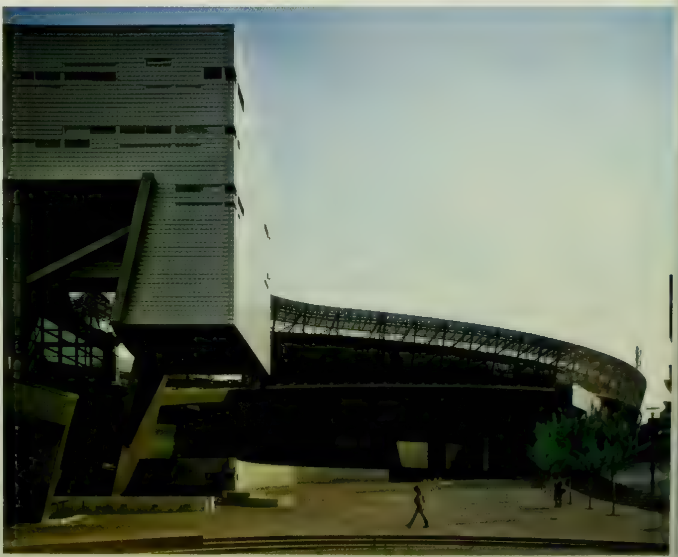


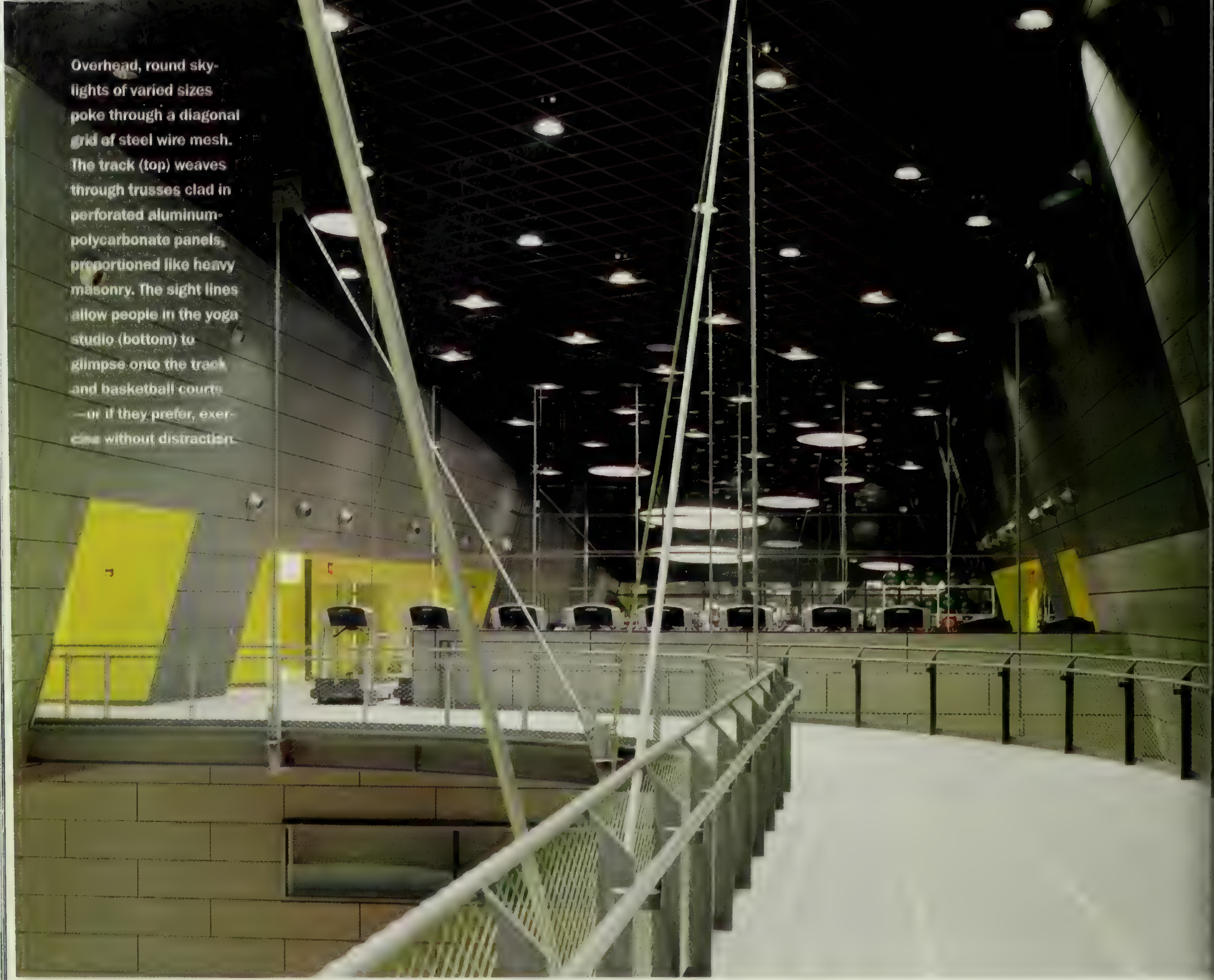
phazardly. (As this curious campus grew, for ample, the football stadium at its periphery me to occupy an oddly central position.)

Spanning a 53-foot grade change, the orphosis project is a veritable freeway interange of a building, with five major campus thways running through it, as well as connecrs bridging to other structures. Celebrating, en willfully exaggerating, the eclectic campus's hoc sensibility, this $113 million compound fuses an aluminum-clad rmitory block with a curved classroom wing, veiled in perforated metal, d an almost amorphous athletic facility, beneath a contoured roof Swisseesed with skylights. Mayne encouraged the university to amplify the iginal program, juxtaposing key components of student life—eating, eping, studying, exercising—at the very center of the campus (whereas using, for example, was previously relegated to the fringes).

Unlike most of the university's signature architecture, however, is is hardly an object building, but what Mayne calls a "background" ne on a "nonsite." As he observes, "Usually you think of iconic structures

The space beneath the building offers casual perches for "seeing and being seen" (above). The housing block's cantilever creates a monumental threshold (right).



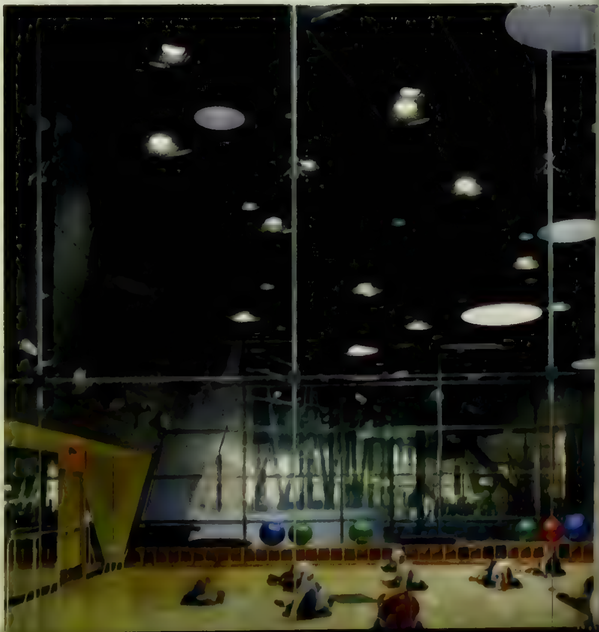


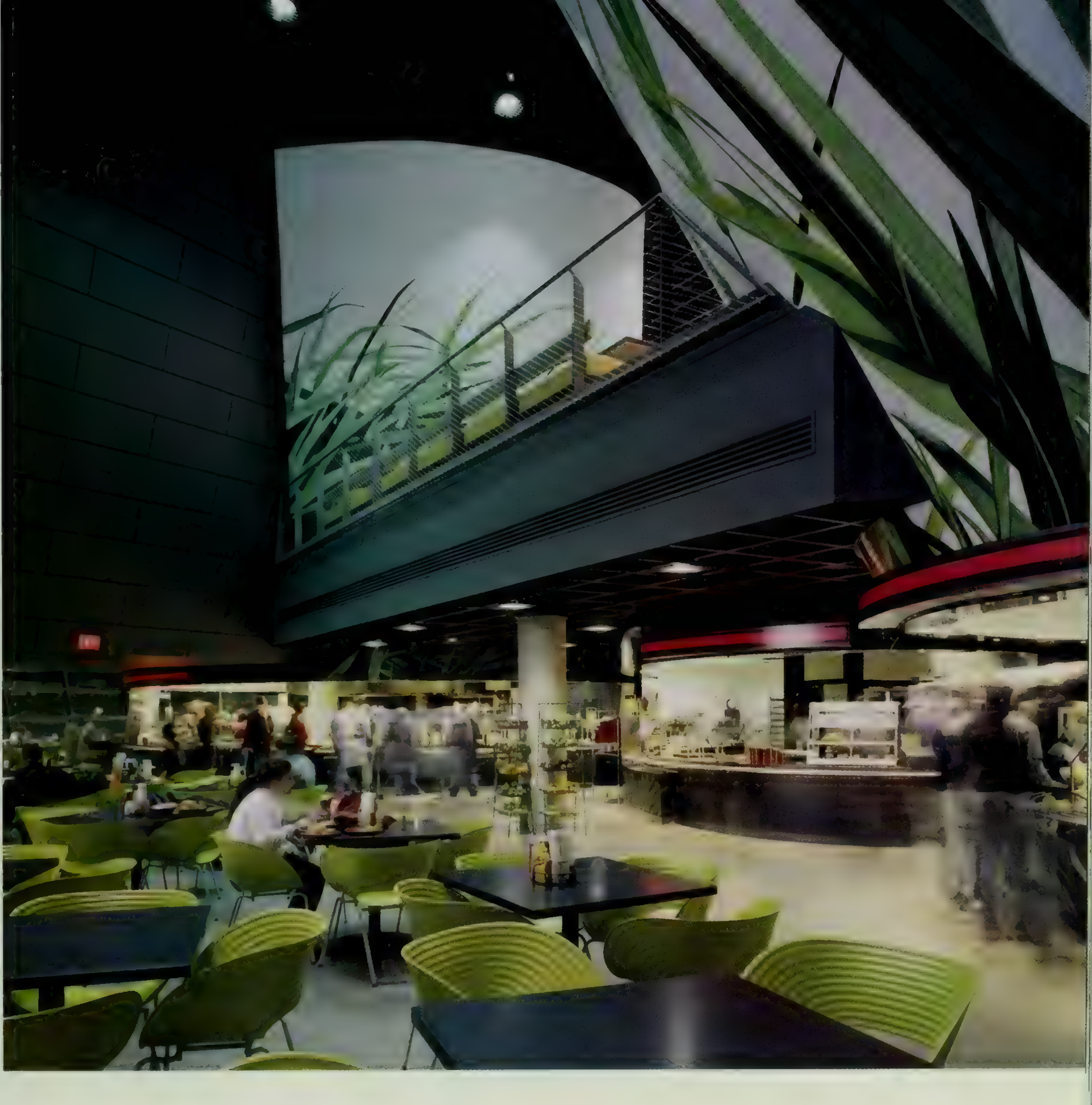
Overhead, round skylights of varied sizes poke through a diagonal grid of steel wire mesh. The track (top) weaves through trusses clad in perforated aluminum-polycarbonate panels, proportioned like heavy masonry. The sight lines allow people in the yoga studio (bottom) to glimpse onto the track and basketball courts—or if they prefer, exercise without distraction.

as muscular and background ones as neutral, even bland, but I contended that a connective building could have a powerful presence."

The concept of interstitial tissue—at least in the overall terrain, if not in the buildings themselves—was always key to Hargreaves's concept for unifying and revitalizing the campus. Put in less biological terms: Instead of treating the buildings as individual gems, his master plan attempts to enfold them into an overall fabric. And rather than impose a rigid ordering system on the existing collage, Hargreaves extends the lines (or "force fields," as he calls them) of historic campus quads and other structures, creating overlapping patterns that define networks of pedestrian pathways and new building footprints. Open green space, like extensions of the adjacent woods, now interlace the campus, replacing parking lots with a sculptural, quasi-architectural topography of mini-mesas, rhythmic stands of trees, and twisted, or what the planner calls "braided," footpaths.

"Main Street," the last major piece of the grand plan, bordering the recreation building's northwest edge, transforms a utilitarian access road into the campus's central pedestrian corridor, stepping up the slope like an Italian hill town. As the name Main Street suggests, this thoroughfare came with aspirations for urbanistic compression, scale, and





the Marché food court, e circular skylights orph into conical forms, earing artist Rebeca endez's murals of iperscaled vegetation.

ound-the-clock buzz. Mayne calls the location the university "epicenter" ıd intentionally brought his structure closer to Moore Ruble Yudell's new eger Student Center there in order to pinch the street tighter at grade ıd concentrate the urban density. At the same time, Morphosis lifts its uilding on concrete-encased stilts, allowing the ground plane to descend eneath it and create a continuum of outdoor public space. Here, a variety f granite stadium steps—envisioned by Hargreaves as casual perches, verlooks, seat walls, spaces for eating, studying, seeing and being seen"—ows under the hovering structure.

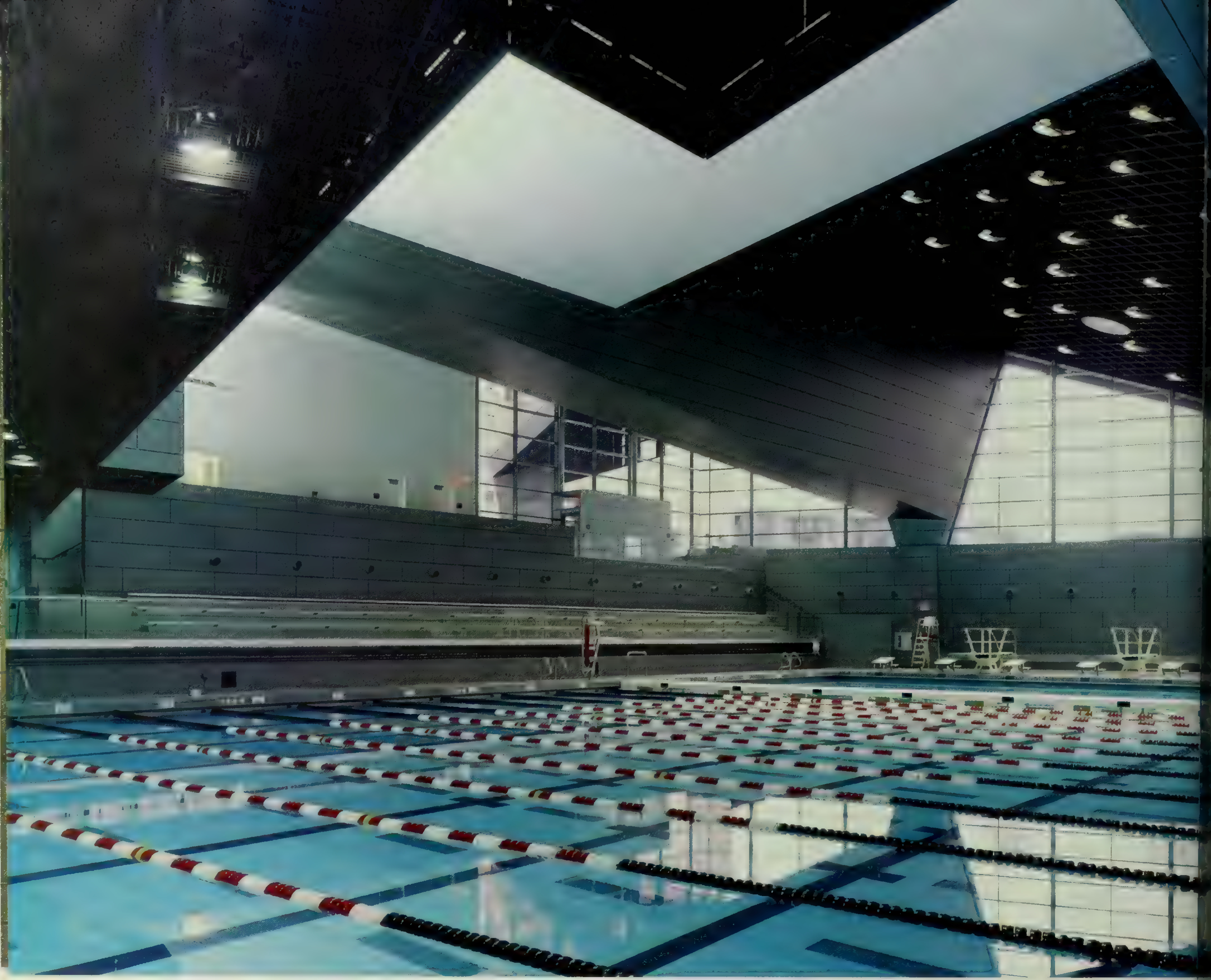
Meanwhile, on the complex's north side, a muscular, awninglike gzag echoes the contours of Hargreaves's folded terrain, much as iorphosis's previous work has evoked topography and shifting tectonic lates in, for example, Hypobank, in Klagenfurt, Austria. Though this ement appears heavy from the exterior, it becomes light and luminous n the interior, floating visually above an Olympic-size pool.

Over the zigzag rises the student housing, a bent, four-story bar ith an imposing 45-foot-long cantilever and punch-cardlike elevations, eminiscent of the firm's Caltrans building [RECORD, January 2005, page 20]. From the interior, the dorm's graphic facade, slotted with thin horizontal windows, translates into awkwardly view-blocking slits, some a mere 6-inches tall, many above eye level, and others below it.

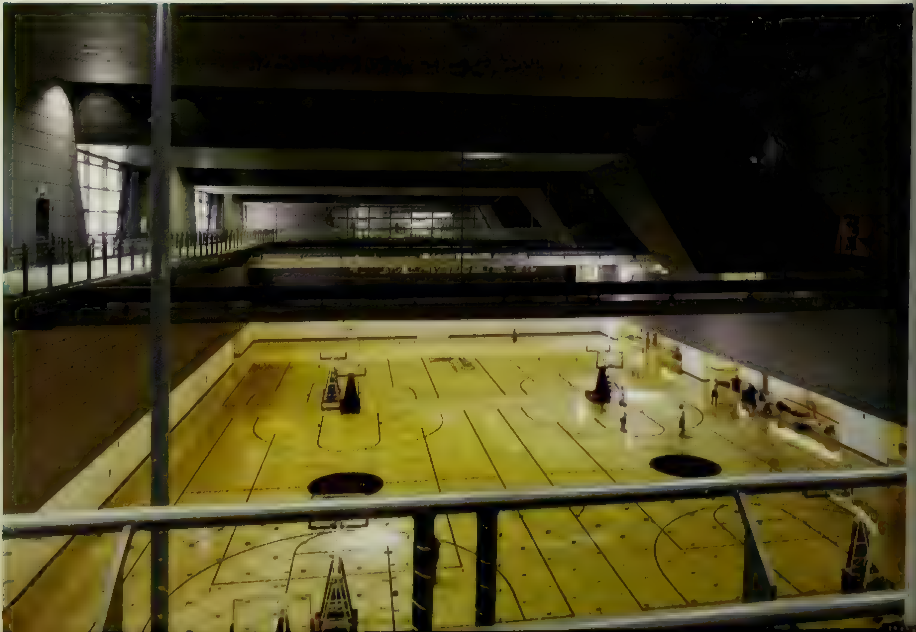
On the compound's southwest side, the unexpected arc of classrooms appears to masquerade as an arena. But, as you discover, the lecture-hall element morphs on its inner side, completing the stadium's U-shape with a curve around the end zone, where Morphosis has provided new bleacher seating and a game-view dining terrace.

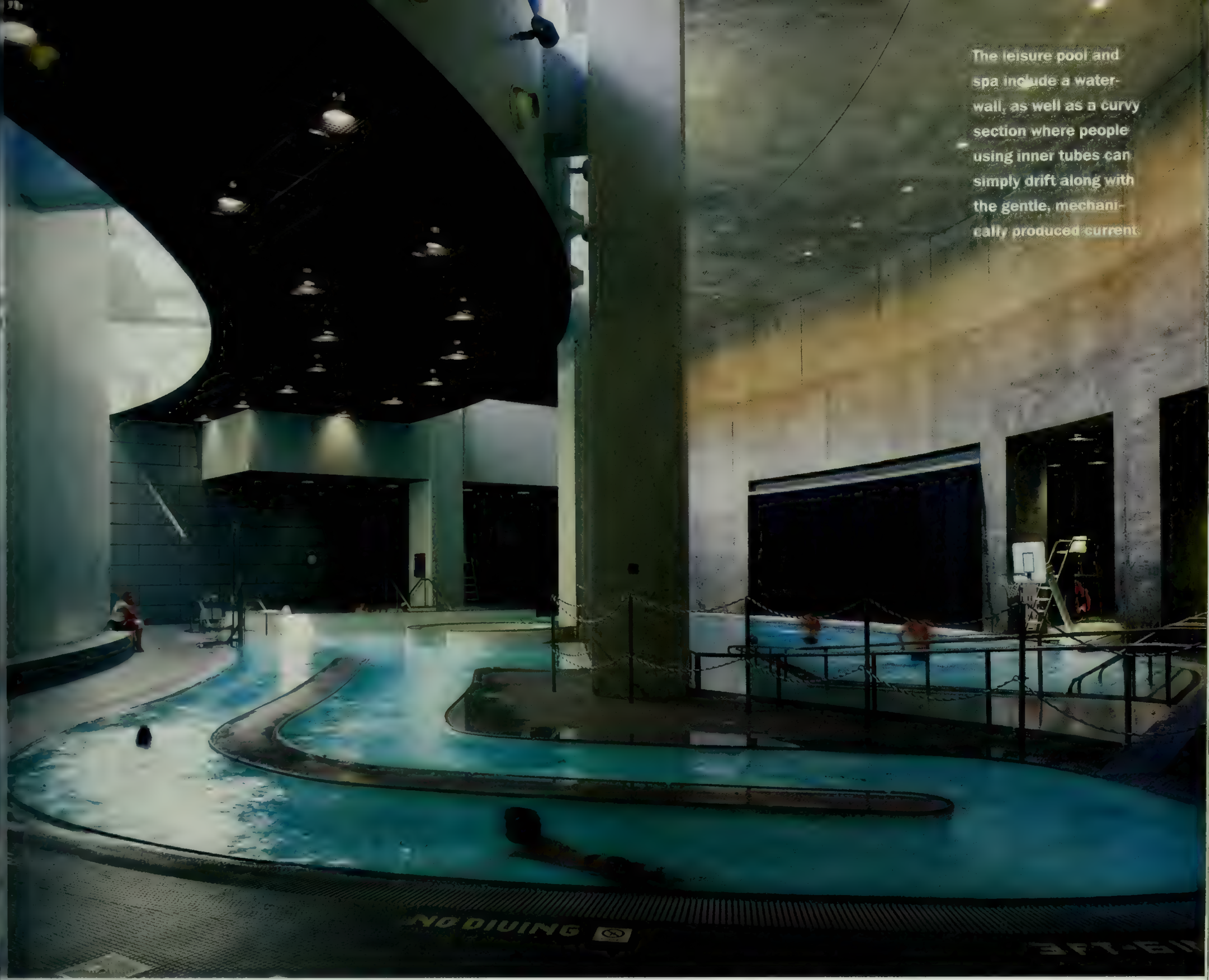
Just as the building's exterior transmutes itself with each adjacency, its interior shifts constantly with programmatic and spatial contingencies. Every activity overlooks others, with transparencies and physical or visual interpenetrations opening up oblique glimpses or longer penetrating views. From the pool, for example, swimmers can see people milling about above them outside the building (and vice versa); and from an indoor track, runners can watch not only athletes on the climbing wall or basketball courts, but crowds some 250 yards away, clear across the football stadium.

The capacity of the building to accommodate so many diverse and simultaneously visible activities relies largely on the flexibility, multiplicity, and mutual independence of its organizational systems. Seven parallel steel trusses, each 12-to-15-feet deep and no two exactly alike, pro-



The 50-meter pool (above) is luminous, with high windows that allow views to the outdoors, and a soaring, complex ceiling, shaped by the housing block's zigzag element, and the building's deep trusses and outdoor plaza. The ⅛-mile indoor track threads in and out of the trusses as it encircles and hovers above the basketball courts (right).





The leisure pool and spa include a water-wall, as well as a curvy section where people using inner tubes can simply drift along with the gentle, mechanically produced current.

de the main structural supports, extending lines from one of the campus 'orce fields." At the same time, the circular skylights, varied in size, gener- e a field condition of dots. These apertures not only offer views up from, y, parts of the athletics center toward the residence hall, but they occasion- ly become transformed into, for example, conical elements in the larché" food court. The building also includes a juice bar, campus store, eas for squash, racquetball, fitness and weight training, and a curvy leisure ool with a spa and water wall, in addition to the 50-meter aquatic facility.

In a space soaring to heights exceeding 60 feet, the ⅛-mile-long ndoor track hovers above six basketball courts, encircling them as it nreads in and out of the trusses. For all the transparency, however, this ocal area remains quite dark, with its massive structural members clad in erforated aluminum polycarbonate and walls in gray fiber-cement board anels, all proportioned like heavy masonry, giving this interior a brood- g, dungeonlike quality, as if it were submerged underground.

Surely it is a building impossible to grasp all at once, with iverse and sometimes fragmented sculptural forms abutting one nother and a panoply of surface treatments—from a diagonal ceiling rid of steel, buckshot with circular apertures, to flashes of chartreuse-painted drywall to murals (in the Marché) of supersize blades of grass. But even with such formal and programmatic abundance, this building is not purely hyperactive—it offers many calm moments, in the pools, on the track, and elsewhere. The goal, says Mayne, was to model its environment on a biosystem, like a forest, that teems with variety and dynamic interaction yet hardly forms an overwhelming whole. While this architecture does not achieve the absolute subtlety of such an ecology, in which extraordinary levels of activity never seem busy, it succeeds in many ways.

A reactive and fluid rather than rigidly composition-driven solution, this building could have turned out as a monumental jumble or tangle, but its mastery lies in the weave—a strong mesh, inside and out, generating the new fabric of the campus. ■

Sources

Exterior cladding: *Waltek; Reynobond; Concrete Technology*

Roofing: *Bemo/USA*

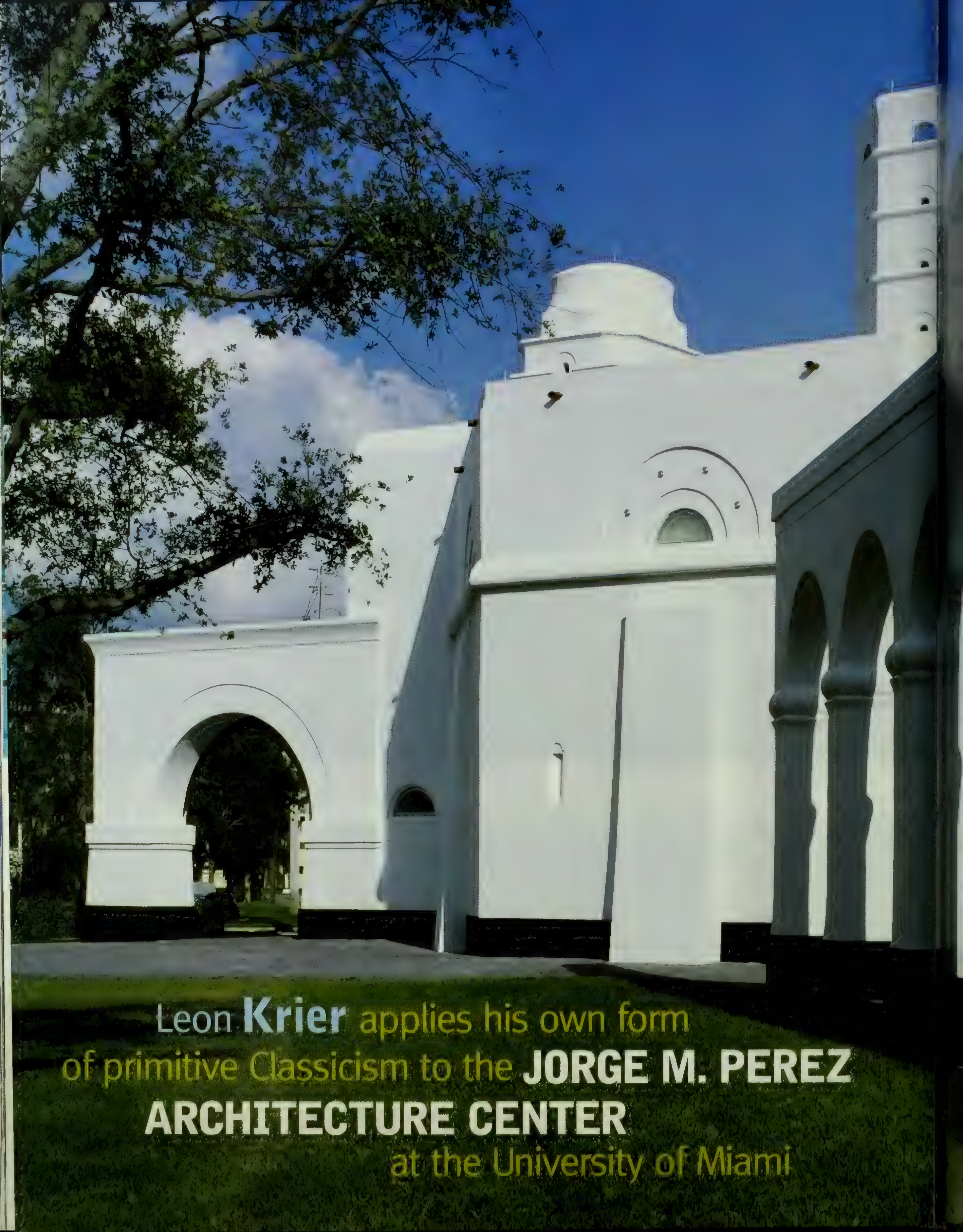
Glazing: *Viracon*

Ceiling grid: *USG*

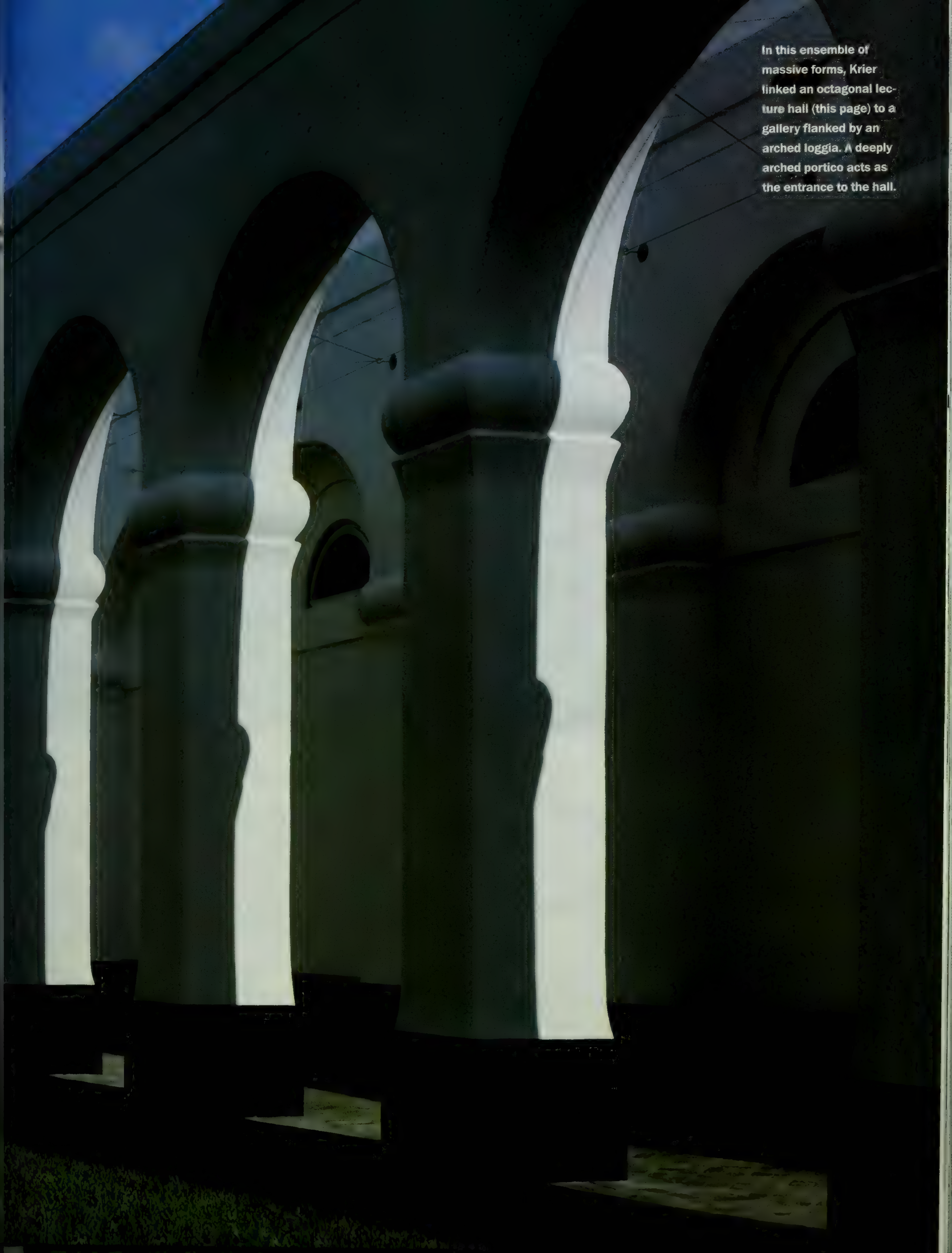
Tile: *Dal-Tile; American Olean*

Furniture: *Knoll; Vitra; Willy Guhl*

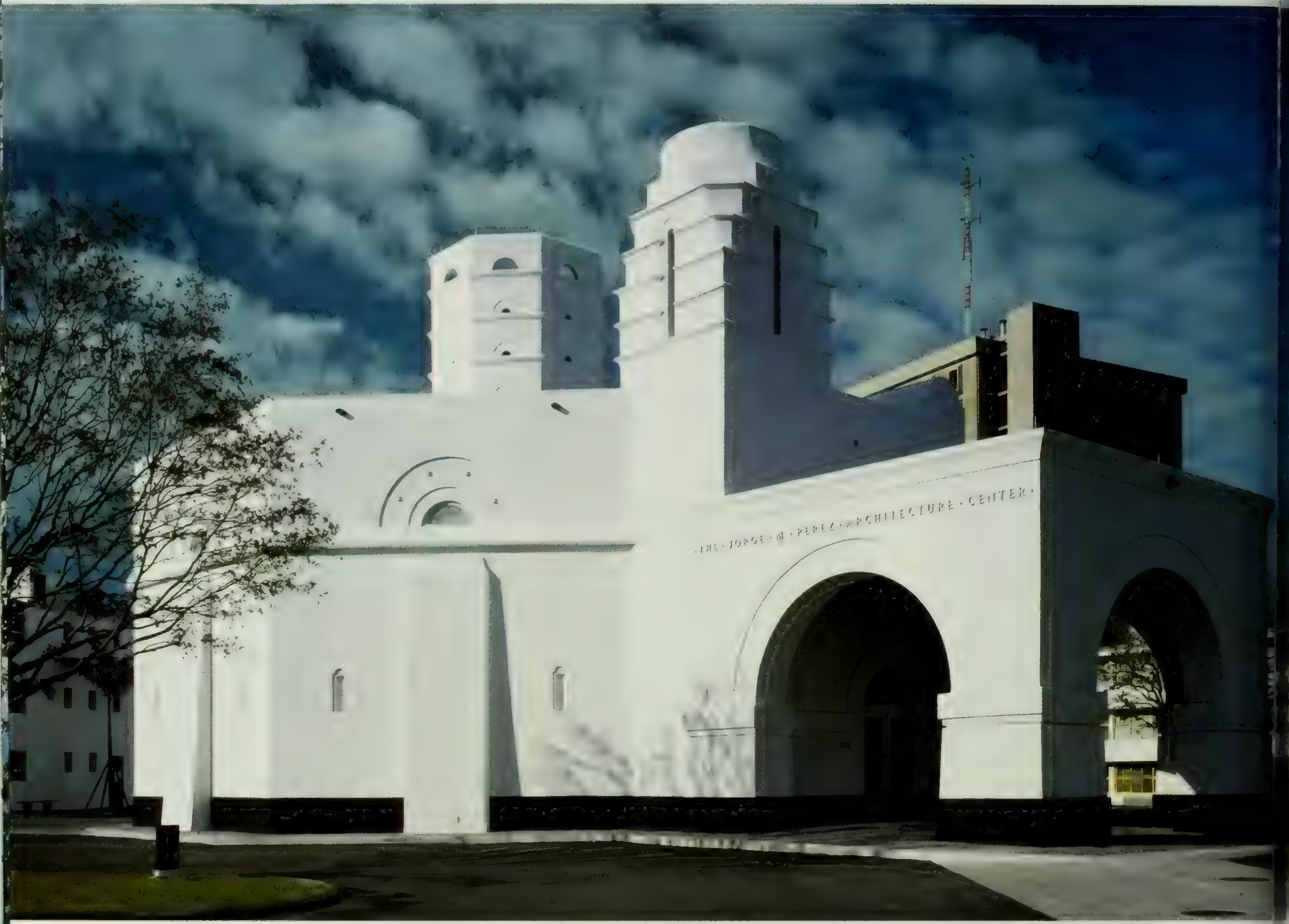
For more information on this project, go to Projects at **www.archrecord.com**.



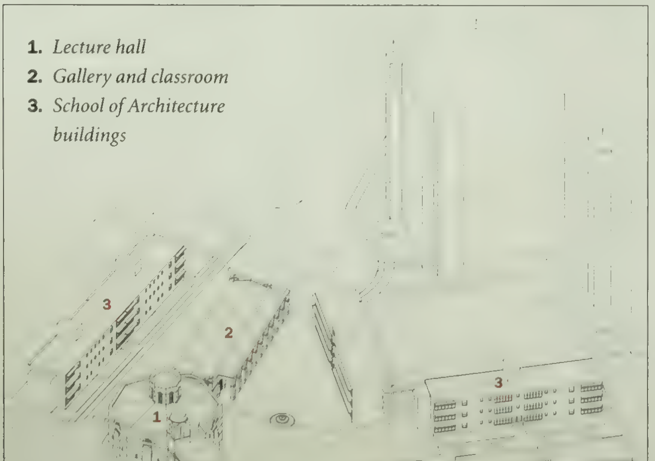
Leon Krier applies his own form of primitive Classicism to the JORGE M. PEREZ ARCHITECTURE CENTER at the University of Miami



In this ensemble of massive forms, Krier linked an octagonal lecture hall (this page) to a gallery flanked by an arched loggia. A deeply arched portico acts as the entrance to the hall.



By Alexander Gorlin, FAIA

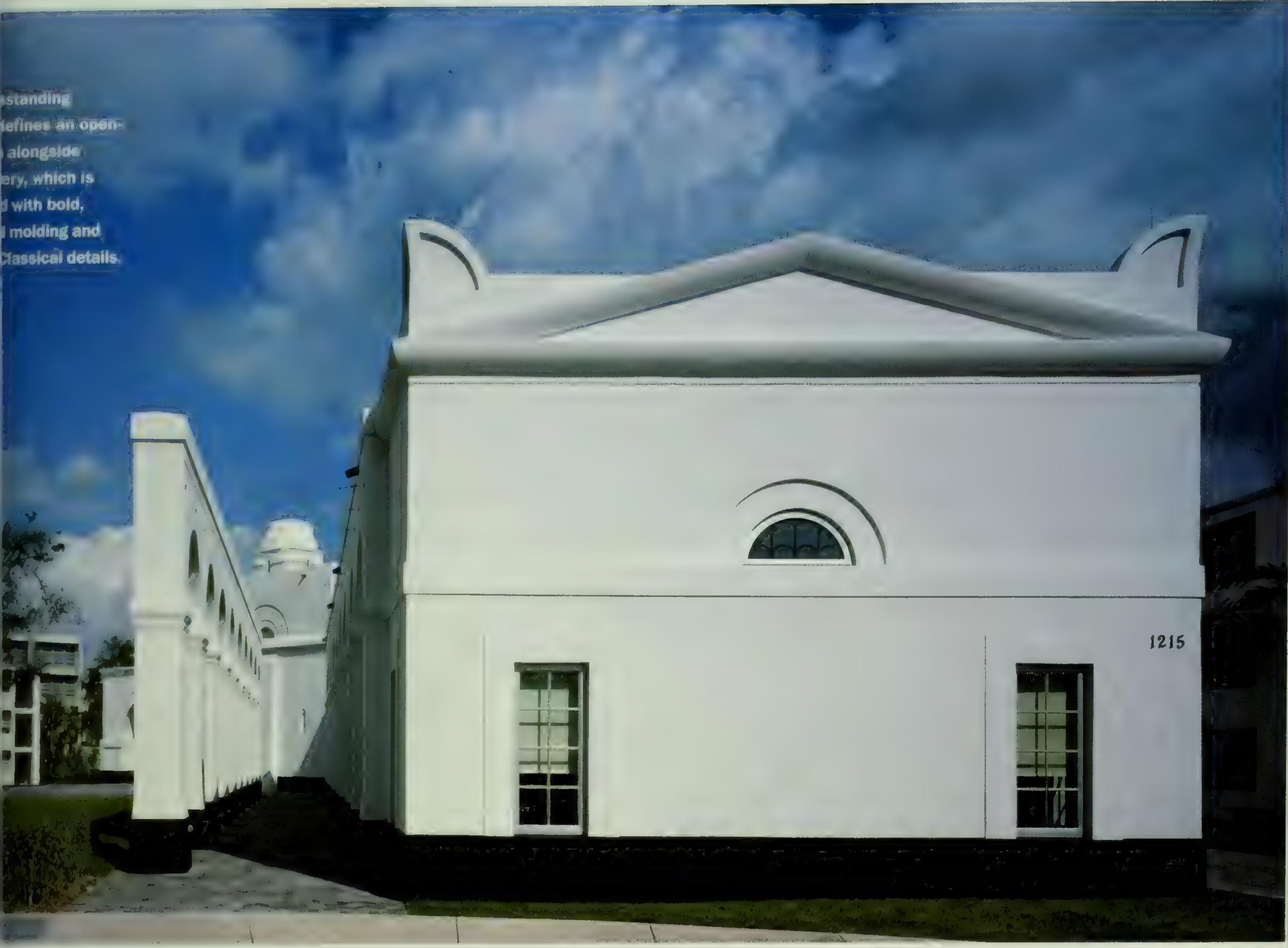


1. *Lecture hall*
2. *Gallery and classroom*
3. *School of Architecture buildings*

It seemed like a match made in Classical heaven: Leon Krier, th patron saint of New Urbanism, apostate of Modernism, and former protégé of James Stirling, is brought to the University o Miami in 2000 by the dean of the School of Architecture, Elizabet Plater-Zyberk. Here he was to continue an earlier mission of Aldo Rossi now deceased, to design a lecture hall and gallery as the focal point of th school, established in 1983, in Coral Gables. (Disclaimer: I donated a paltry sum to the building fund.)

With the full support of the dean, an eminently accomplishe architect and urban planner, as well as the faculty, what could go wrong This being Florida, the unexpected is the norm, whether in politics o architecture. As the irresistible force meets the immovable object, so di the legendary Krier have numerous plans rejected over the next two year by the staunchly Modernist Buildings and Grounds Committee, whic was less than sympathetic to a traditional building of any kind on campus. Ironically, in this land of Mediterranean arches, Krier's final schem was actually shelved until the founder and C.E.O. of The Related Grou of Florida, Jorge M. Perez, donated $1.5 million in 2002 on the conditio

Alexander Gorlin has his own practice in New York City.


standing
defines an open-
alongside
ery, which is
with bold,
molding and
Classical details.

at a specific design by Krier be built. With enormous effort, a version of is scheme opened a year ago, with the overall massing true to the orig-al, but the details best viewed under an Impressionist lens, fuzzy and it of focus.

Part of the problem resulted from the fact that three architects ere ultimately involved with the project. A donation of $1.18 million by e alumnus Stanley Glasgow and his wife Jewell provided the seed oney for the project. His architecture firm, Ferguson, Glasgow, uster, Soto, Inc., was named the architect of record, providing the nstruction drawings. (The sole surviving partner, Natividad Soto, ganized all aspects of the project through construction.)

When Krier was chosen as the design architect, he brought in errill & Pastor (now Merrill, Pastor & Colgan) of Vero Beach, with hom he had previously worked on other Florida projects. While the m translated Krier's hand sketches into design development drawings, three firms stayed involved in every phase of the project—which may ve meant too many cooks stirring up a not quite perfect bouillabaisse.

Urbanistically, the Jorge M. Perez Architecture Center is a pow-ful and mysterious work of architecture that gives coherence to a mber of formerly gelatinously undifferentiated spaces and streets on campus. A four-sided arched entry connects to a massive octagonal lecture hall, linked by an open breezeway to a basilicalike gallery with a freestanding loggia. Alone among architects working in a traditional syntax, Krier has extended the vocabulary of Classicism through a bold use of proportion, and a free interpretation of its tropes and motifs. A superb example of primitive Classicism, the center employs none of the expected ancient orders or moldings. Nevertheless, it embodies the gravitas and weight appropriate to a civic building at the center of an institution of higher education.

Two towers marking the building do not recall any specific precedents, although the lecture hall's cupola resembles a vernacular

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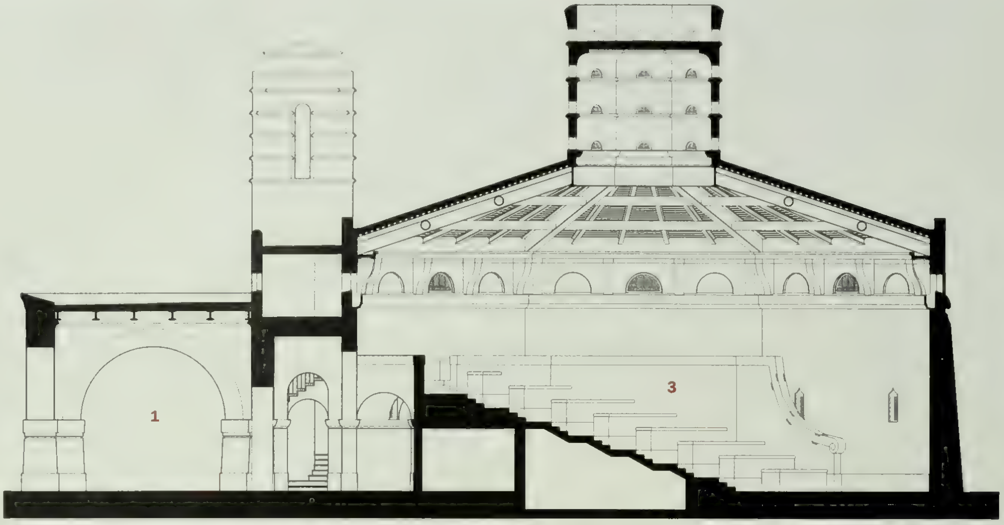
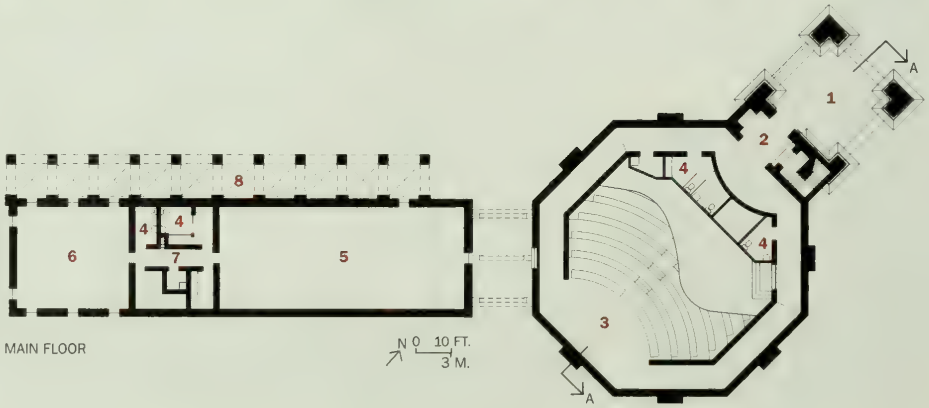
Project: *The Jorge M. Perez Architecture Center, School of Architecture, University of Miami*
Design architect: *Leon Krier*
Design development architect: *Merrill, Pastor & Colgan Architects—Scott Merrill, AIA, principal in charge*

Architect of record: *Ferguson Glasgow Schuster Solto, Inc.—Natividad Soto, AIA, principal in charge; Andres Prieto, project manager*
Engineers: *Brill Rodriguez Salas (structural); Post, Buckley, Schuh & Jernigan (civil); Gartek Engineering (m/e/p and fire)*



SECTION A-A



MAIN FLOOR

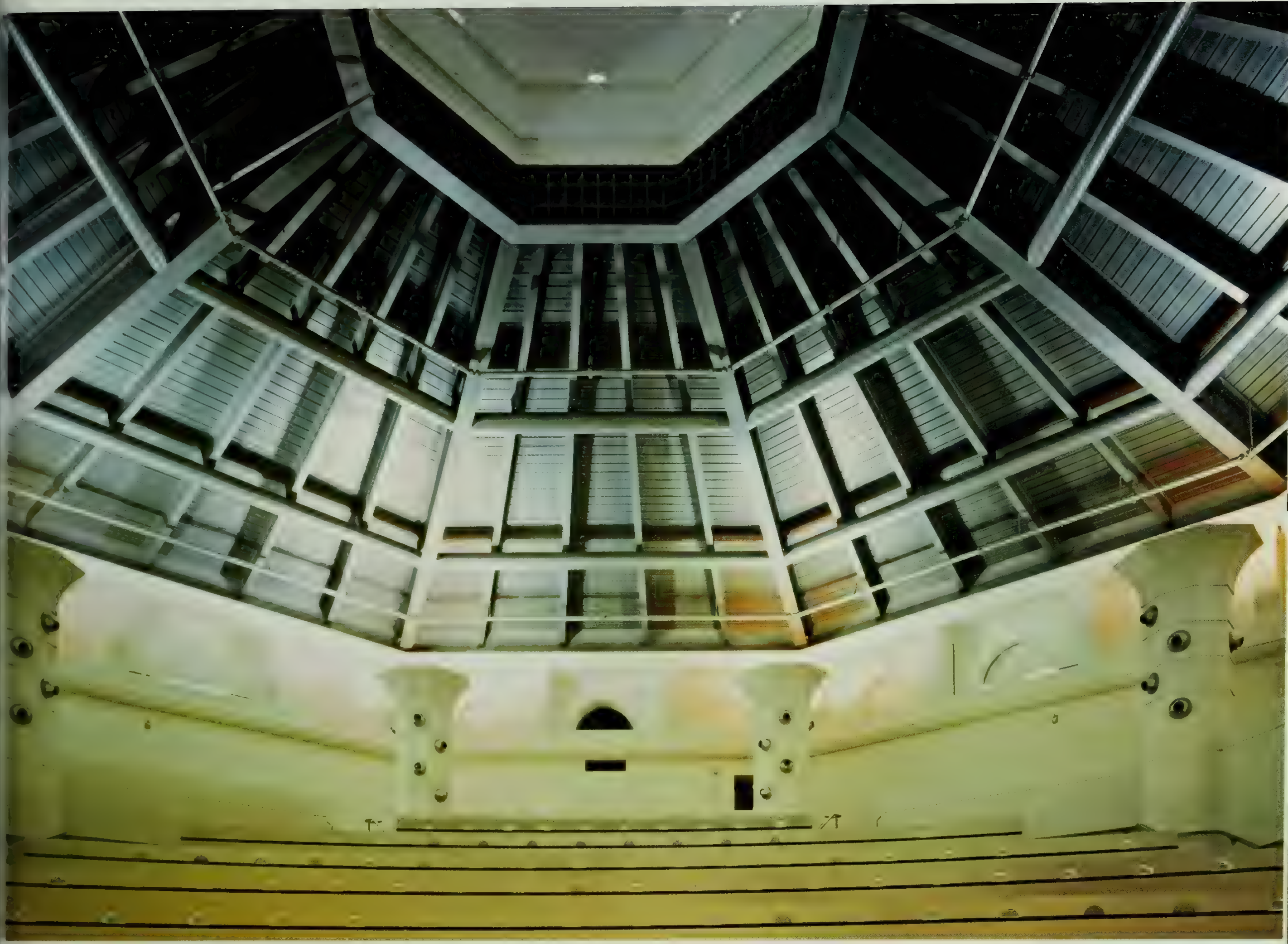
1. *Entrance portico*
2. *Foyer*
3. *Lecture hall*
4. *Bathrooms*
5. *Gallery*
6. *Classroom*
7. *Hall*
8. *Loggia*

The octagonal lecture hall features a domed roof with steel beams and wood decking (opposite). The room can be glimpsed through an oculus in the entry foyer (left), where an arch to the hallway frames a niche in the back wall.

dovecote or a Roman columbarium, and the other recalls a bell tower in white-washed Greek village. Together, as the towers shift and align as on walks toward them, they bring to mind the twin steeples of St Martinville in Proust's *Swann's Way.* Krier's architecture has this literar and memorable sensibility that defies an exact reference, in contrast to th more transparent allusions of, for example, Robert A.M. Stern Architects

The interior of the lecture hall features an industrially detaile dome of exposed steel beams and decking that surmounts a steeply rake series of seats and desks for 145 students. The design elicits multiple readings, from Scamozzi's Teatro Ducale in Sabbioneta, Italy (1598), to 19th-century dissection theater, and fosters the idea that education is shared experience. Attached to the hall is the gallery, a long, open structure that functions as a multipurpose room, with half-round openings i the clerestory. Surprisingly, you find the interior spaces are much simple than you would expect from the complex village of parts outside. Th spaces throughout exude an industrial feeling, with exposed steel beam and ducts hovering above massive white walls: The mix is serene, but a times feels like a reinhabited ruin.

The fragmentation of the buildings' massing breaks up the scal of the center and creates a series of open spaces and terminating vista



at organize a campus that was for so long a complete mess. The campus's w, horizontal, International Style buildings, designed in 1945 as student using by the first woman architect in Florida, Marion Manley, are nocuous enough. Yet even painted white, with details in De Stijl black, d, blue, and yellow, they don't offer inviting places for students to ngregate. Krier unified the existing plan by using a "knuckle and bar" agram like that of the circular Island Enclosure of Hadrian's Villa in voli and created a piazza, a central gathering space, for the school.

Constructing an 8,600-square-foot, concrete-block-and-steel ilding was another story, with Krier, full of sound and fury, in the end gnifying a structure with built imperfections, albeit mostly in the details. ean Plater-Zyberk states that because this is an educational building, en the problems are lessons. In that light, the project is a resounding ccess. But since donated funds, even from generous alumni, weren't ough, the school resorted to heavy "value engineering"—a euphemism r a slash-and-burn paring down of design elements. For example, a yer of stucco vanished for cost reasons, resulting in reveals that do not nerate the intended shadow lines so dramatic in the strong, hot sun.

Krier contends that many details were not realized according to s plan (an impost was upside down), and some not at all. In great measure, much of this is due to the low level of craftsmanship of the Miami builders. Of course, some of the details that Krier pointed out, such as the missing features of the intrados, or the absent fillets (a rectangular molding) and congé (a curved molding), may be due to the fact that the builders had no idea what he was talking about. Someone should have told Krier that southern Florida is not Switzerland.

In the end, Krier's work is radical in its rejection of the trend to reduce architecture to singular theoretical terms, encapsulated by such nouns as "sponge" or "rhizome." Ironically, it employs the full array of forms and ideas closest to Le Corbusier's "three reminders to architects" in *Towards a New Architecture* (1923)—mass, surface, and plan. The Jorge M. Perez Architecture Center is a flawed masterpiece; perhaps a future generation will restore or complete the work to its full glory of precise detail. ■

Sources

Concrete and masonry: *Rinker Materials Corporation*

Aluminum (windows): *CGI*

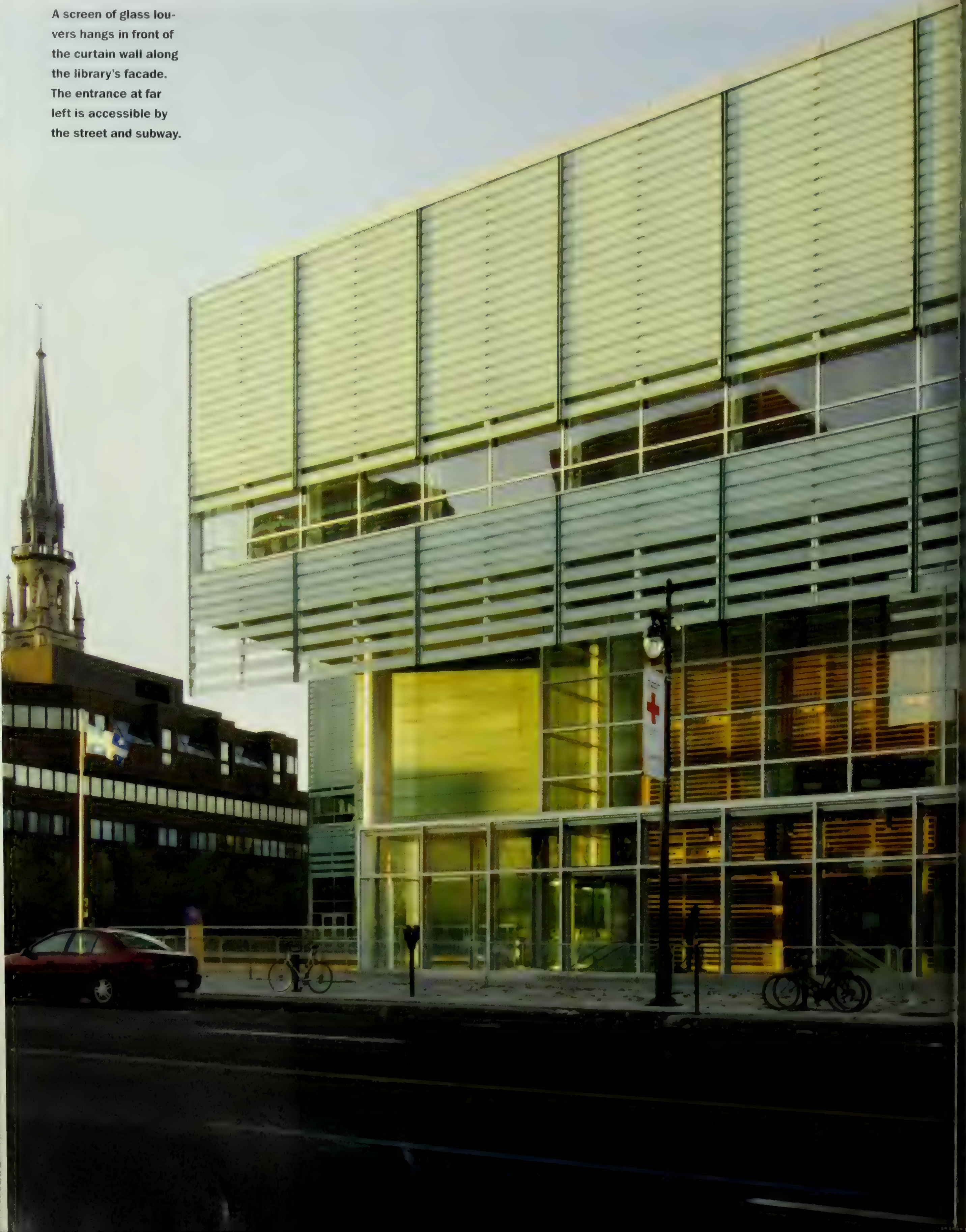
Metal: *Siplast*

Concrete floor stain: *Mineral Life International*

Paint: *Sherwin-Williams*

For more information on this project, go to Projects at **www.archrecord.com**.

A screen of glass louvers hangs in front of the curtain wall along the library's facade. The entrance at far left is accessible by the street and subway.



Patkau leads a team of Canadian architects to create a cultural beacon at the GRANDE BIBLIOTHÈQUE in Montreal

/ **William Weathersby, Jr.**

Critic Kenneth Frampton calls the Grande Bibliothèque in Montreal "one of the most cultivated public buildings to have been built in North America in recent years," but the library's cultural identity is even more specific to its place than continent country. Quebec, the largest French-speaking society in the Americas id Canada's largest province, has a strong heritage and identity; since e early 1970s, political factions have urged the province to secede as separate country. The 400,000-square-foot library, designed by ncouver-based Patkau Architects and a team Montreal firms including Croft Pelletier and enkès Shooner Dagenais Letourneux, houses oth a general reference library and Quebec's ational" heritage collection—the latter con- ining more than one million volumes ublished in or about Quebec since the 1760s.

The Grande Bibliothèque aims to be e central edifice reflecting the region's literary lture. Occupying an urban site threaded with complex program, the building is also urring renewal in a downtown neighborhood moving toward change.

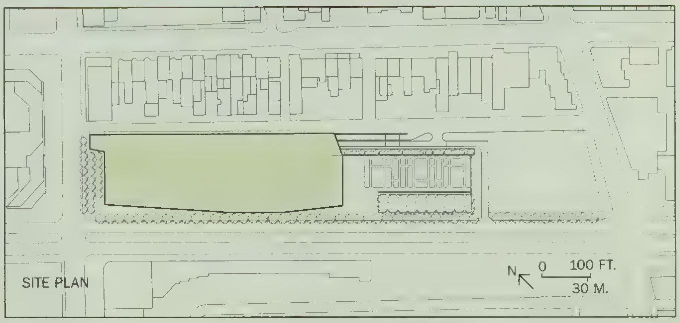
Unlike other regions in Canada, Quebec has not historically pported public libraries. Before the so-called Quiet Revolution, a period government liberalization that swept the province during the 1960s, e strong arm of the Quebec Catholic Church had commanded censor- ip of many literary works and turned down grants by the Carnegie oundation to construct neighborhood libraries. (In contrast, more than 0 Carnegie libraries rose across the province of Ontario.)

The vision to build a central Quebec library, spearheaded by rmer Quebec premier Lucien Bouchard and founding library director ise Bissonnette, led to a limited international design competition in 00. John and Patricia Patkau won the commission from a short list that cluded Zaha Hadid, Christian de Portzamparc, and Saucier + Perrotte.

The Patkaus are known for building expressive structures spired by the natural materials and terrain of their home province, ritish Columbia—including private houses and community facilities ch as the Seabird Island Elementary School. The Grande Bibliothèque is eir largest civic project to date, and takes a more inwardly focused pproach, enclosing dynamic spaces within an urban glass box.

Built on the site of the former Palais du Commerce, a trade-show pavilion, the six-level library is set within a city block between Boulevard de Masonneuve and Rue Ontario in Montreal's Latin Quarter. The library sits diagonally opposite a green space, Parc Emilie-Gamelin, and connects below grade to the intersection of three metro transit lines. Across the street from a bus station slated for redevelopment and adjacent to the campus of the University of Quebec at Montreal, the complex was conceived as a bridge between civic and academic communities.

The team's design for the library was inspired by "its complex program and need for efficient circulation," says principal architect John Patkau, AIA. In addition to the circulating library and the historic Quebec collection, the building houses a children's library, a 24-hour library, and



The library is situated in the Latin Quarter, adjacent to the campus of the University of Quebec at Montreal and a block from the bohemian shops and cafés along Rue St. Denis (above and plan).

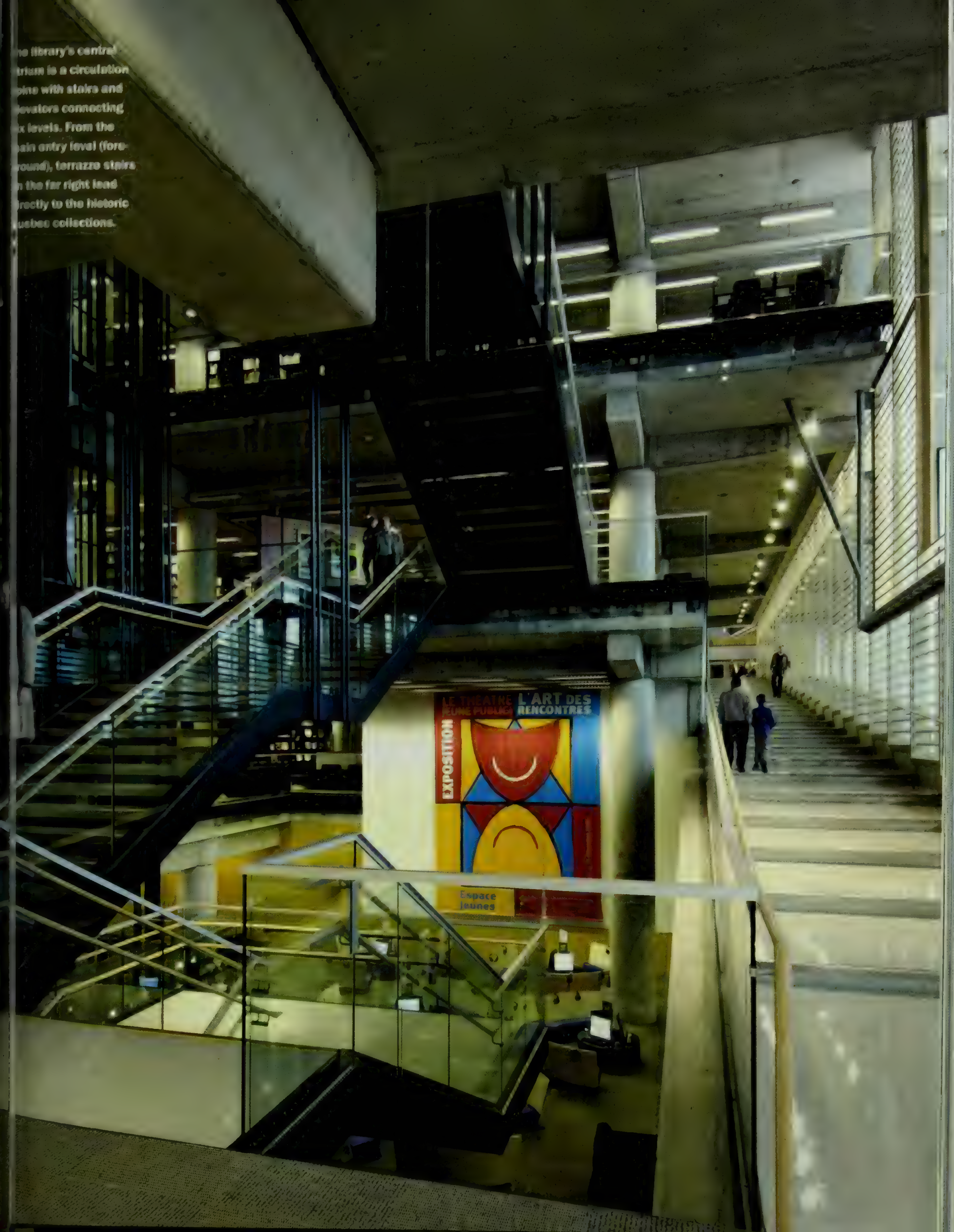
Project: *Grande Bibliothèque, Montreal*
Architect: *Patkau/Croft Pelletier/ Menkès Shooner Dagenais architectes associés, a joint venture—John Patkau, AIA; Yves Dagenais, principals in charge*
Engineers: *Regroupement Nicolet Chartrand Knoll Limitée; Les Consultants Géniplus (structural); Regroupement Bouthillette & Associés; Groupe HBA Experts-Conseils (mechanical/electrical)*
Consultants: *Scheme Consultants (landscape); NBBJ (lighting); Legault Davidson (acoustic)*

Sections of the glass-louver screen are cut away to create apertures that frame views of the city (above) and a sunken garden (left). The asymmetrical arrangement of clear glazing creates a syncopated pattern.

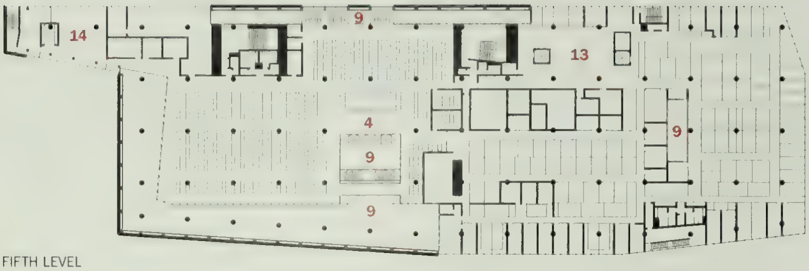
public amenities including a lecture theater, café, art gallery, and stalls for booksellers. The tight budget of $70 million (U.S.), allocated by the province, allowed no concessions for potential cost overruns. "The construction budget came to about $110 per square foot, about a third of the construction cost of the Seattle Library," John Patkau notes. "Those were very austere parameters to work with for a library this size. Rather than use the entire block-long site, we decided to compress the library at the south end near the metro station. The rest of the block was given over to a public garden and a site at the north end that could be used later for another civic building. Our strategy was to keep the interior functions compact while enclosing as much volume within the minimum envelope. It became a challenge of mapping circulation and connectivity between spaces."

Though Patkau had designed a small library in Surrey, British Columbia [RECORD, June 1995, page 94], he says that addressing the complexities of this larger project called to mind a project he admires, Will Bruder's Phoenix Central Library. "Phoenix has a central circulation core that works very well in getting people moving through the building to various levels," Patkau says. "We kept that in mind for Montreal."

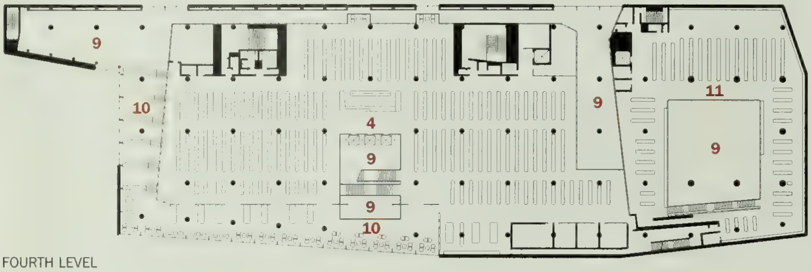
The structure of the Grande Bibliothèque was also influenced by studies for the Patkaus' unbuilt health science center at the University of Texas at Houston. The earlier project's horizontal thrust is translated as the library's facade along Rue Berri, with a screen of green-glass planks hanging



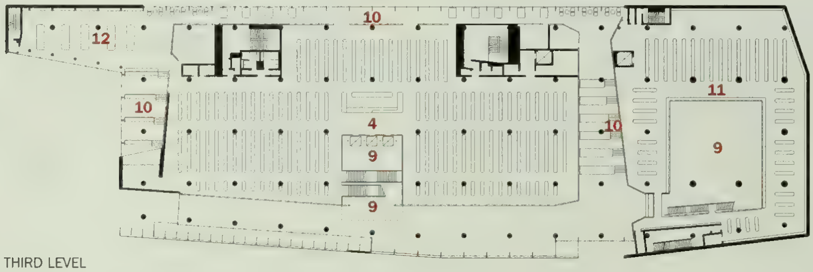
he library's central
trium is a circulation
pine with stairs and
levators connecting
x levels. From the
ain entry level (fore-
round), terrazzo stairs
n the far right lead
irectly to the historic
uebec collections.



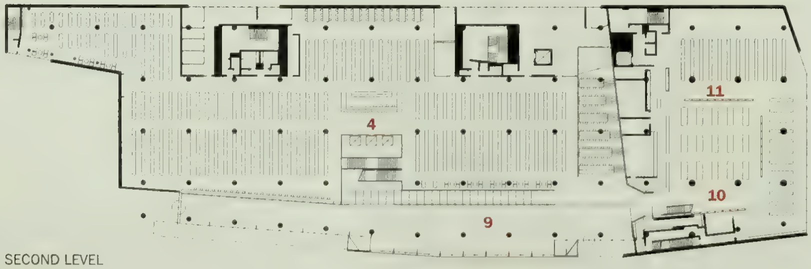
FIFTH LEVEL



FOURTH LEVEL



THIRD LEVEL



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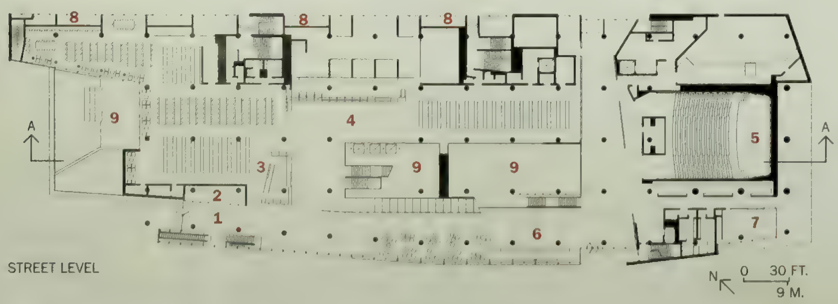
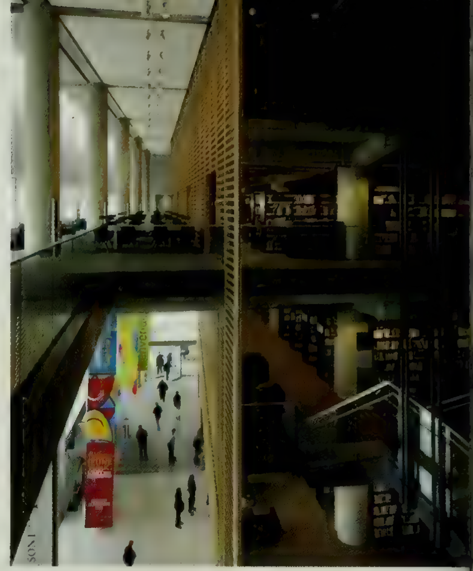
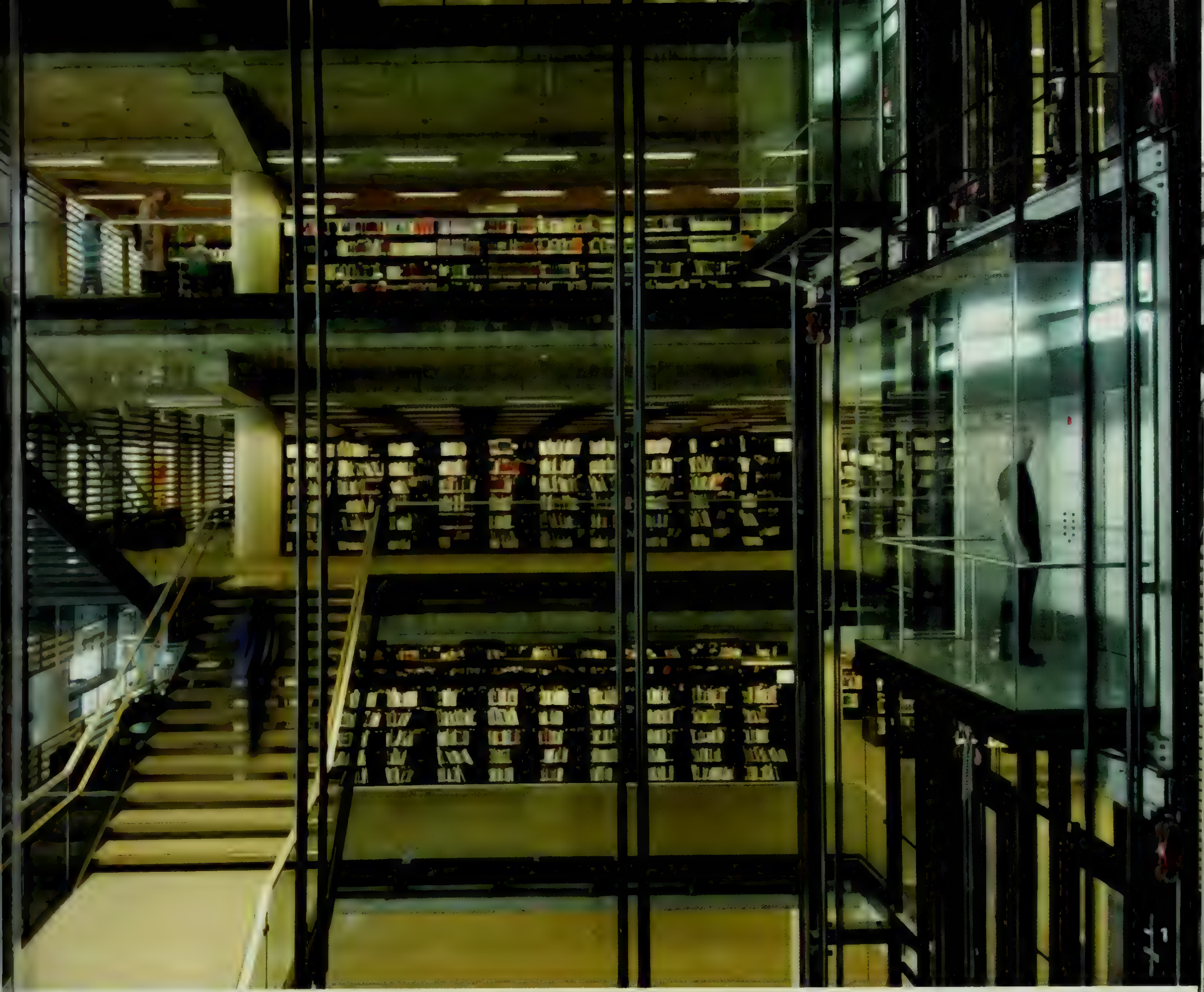


STREET LEVEL



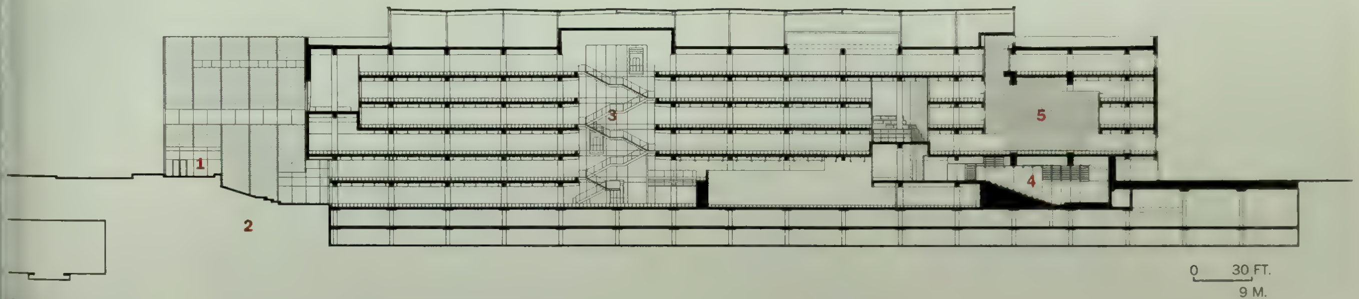
The triple-height promenade serves as an interior street on the main level that connects the library's primary components (above). The wood-slatted enclosures visually recall the horizontality of the facade's glass-louver screen.

1. *Main entry*
2. *Bookstore*
3. *24-hour library*
4. *General library*
5. *Auditorium*
6. *Café*
7. *Meeting room*
8. *Booksellers' stalls*
9. *Open to below*
10. *Reading room*
11. *Collection Québécoise*
12. *Map room*
13. *Administration*
14. *Staff room*



e library's central rculation core creates open, democratic eling. Staircases and ass-fronted elevators nnect the six levels. e walls of birch louvers allow daylight and air through the spaces while creating secure enclosures for general books as well as the Quebec national collections.

1. *Entry*
2. *Subway*
3. *Circulation atrium*
4. *Auditorium*
5. *Collection Québécoise*



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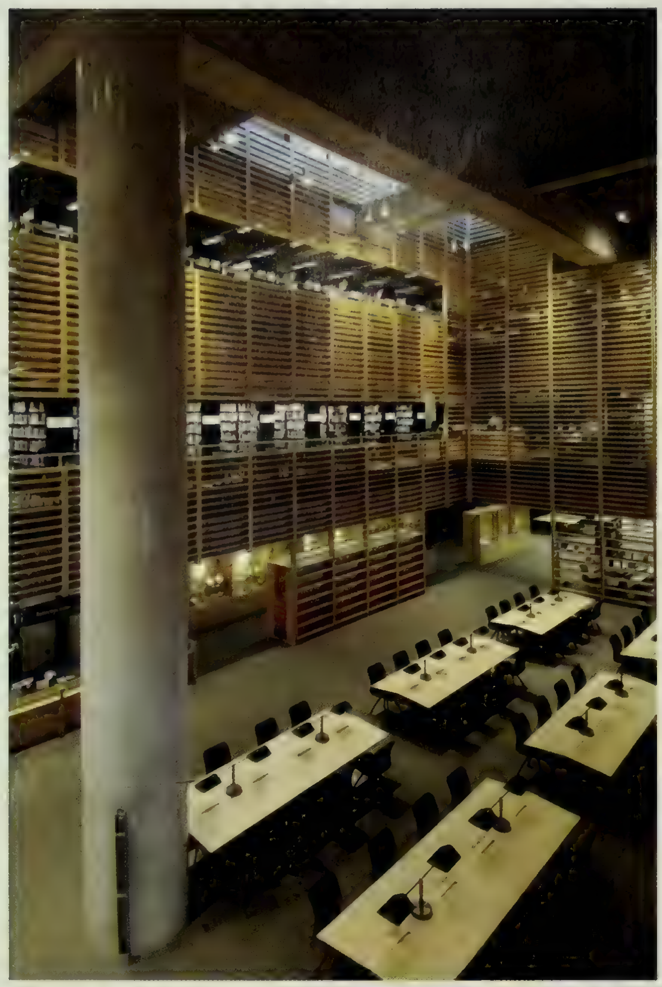


The reading room of the Quebec collections (left) is enclosed by birch louvers, which separate it from stacks while keeping sight lines open (below).

in front of a curtain wall. Although the louvers diffuse light and give the facade a highly crafted, streamlined quality, the Grande Bibliothèque is best judged aesthetically by its contents, not its cover. The Patkaus' competition-winning design called for cladding in horizontal copper panels that proved to be too costly; the few copper panels that remain near the entrance don't deliver the same visual impact. Though a welcome respite from the glum brick facades of its neighbors, the glass-wrapped facade appears anemic in contrast to the dramatic interiors that await inside.

The main entrance overlooks a sunken terrace that carves away a corner of the rectangular structure. At street level, visitors enter a monumental, triple-height promenade that runs the north–south length of the library and connects its principal functions: main reception, central stair/elevator core, 300-seat lecture theater, and meeting rooms. Running parallel to the street, this internal corridor imparts a sense of procession while orienting library patrons to their surroundings.

The building's compelling centerpiece is the dramatic network of circulation at its core. Cantilevered staircases with terrazzo treads ascend through the library's six levels. Within the same volume, glass-fronted elevators quietly transport patrons while affording glimpses of activities taking place on each floor. An atrium within the reinforced concrete structure, this vertical spine is bordered by reading rooms, reference desks, and stacks, evoking a town-center effect as people move throughout the building.

Two major collections—the general circulating library and the Collection Québécoise—are housed within a pair of large boxes framed by slats of yellow birch, the official tree of Quebec. The louvered walls allow light, sound, and air into each interior, while lending an open, democratic air to the library. Each area, however, is infused with a different character. The Quebec collection envelops a triple-height reading room with media stored behind the screens along the perimeter. With green glass reading lamps set atop birch tables, this grand, central space allows readers to view the seemingly infinite rows of stacks which surround them. The general collection, the larger of the two slatted boxes, reverses the layout. Here, the central space is a "storage container" for media materials housed in stacks. A variety of reading rooms and areas encircle the wood-slatted enclosure.

Between the two wood-slatted boxes and the exterior skin, a necklace of diverse spaces—from intimate balconies to informal seating areas—offers spatial variety and unexpected juxtapositions. At opposite ends of the building, for example, two reading rooms composed of stepped study carrels traverse the width of the block, creating terraced pathways as additional circulation routes. Meanwhile, below grade, the daylight-filled children's library opens onto a landscaped courtyard.

Although veiled by a subdued facade, the library may soon weave a closer connection to the fabric of the city: A proposed café within the entry promenade would open onto the street, while not-yet-occupied commercial booksellers' stalls at ground level could attract pedestrian traffic along the narrow alley behind the building. With its interior landscape already displaying a complex topography of functions navigated via well-planned circulation options, the Grande Bibliothèque is a beachhead in Quebec's quest to preserve and share its revered culture. ■

Sources

Concrete: *LaFarge; Groupe Tremca; Sorel Tracy Ciment*

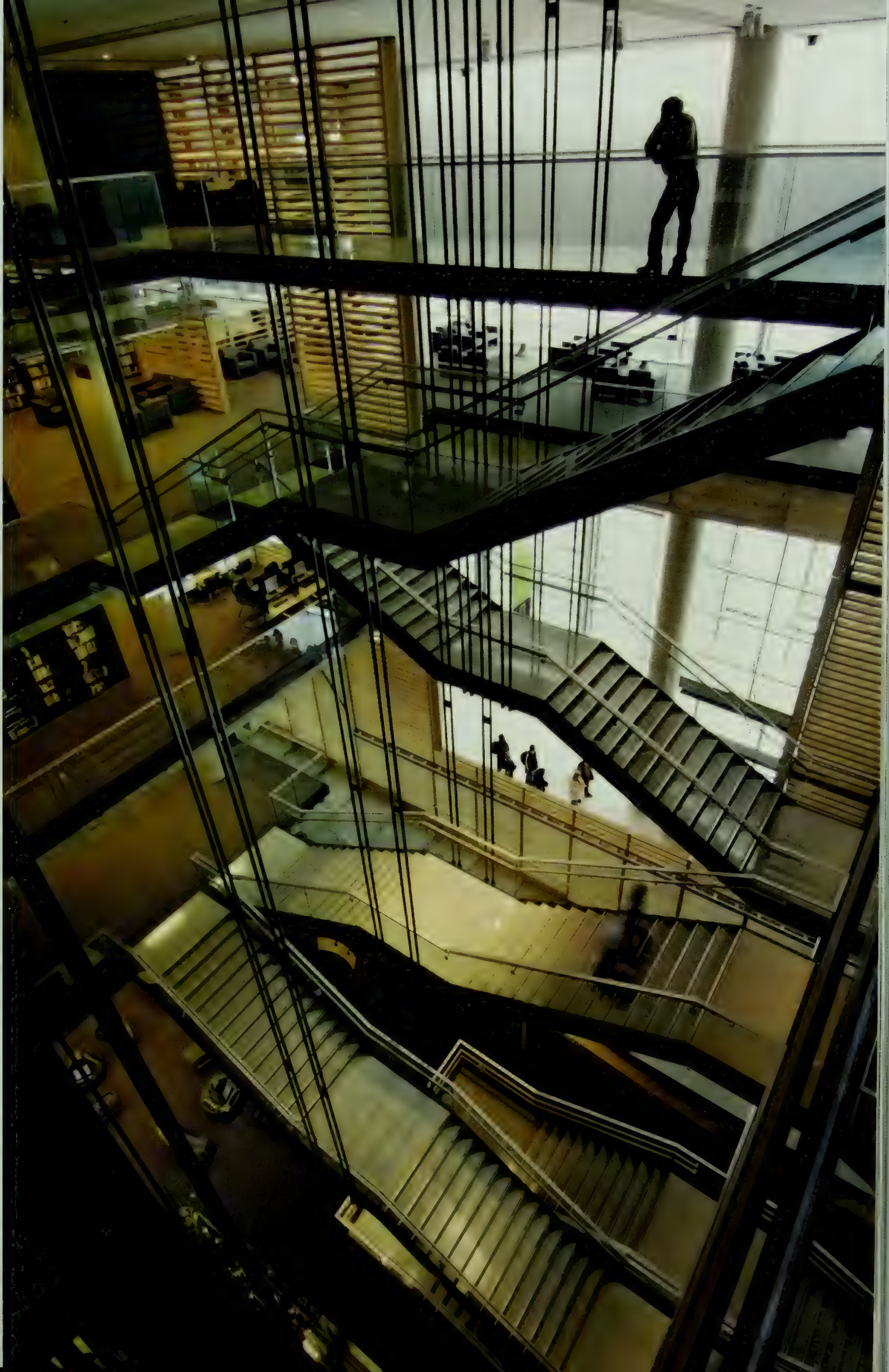
Glazing, curtain wall: *Vitrerie Surmesure; Vitrerie Vertech 2000*

Woodwork: *Beaubois*

Raised floors: *ASP Maxcess*

For more information on this project, go to Projects at **www.archrecord.com**.

antilevered stairs with
rrazzo treads grace-
lly connect the six
vels of the Grande
bliothèque. Daylight
asses through the
ple-height entry
omenade to enhance
e central core. In-floor
echanical systems,
cluding ventilation,
ep sight lines clean
thin the open plan.



Opening views into the library (this page) makes it a safer place The new buildings align with an existing swimming pool and bathhouse (opposite).

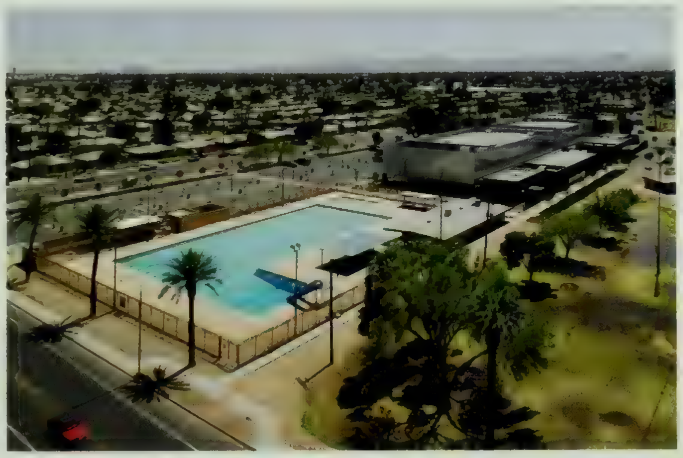
Gould Evans and **Wendell Burnette** make urban and social connections at the PALO VERDE LIBRARY AND MARYVALE COMMUNITY CENTER in Phoenix

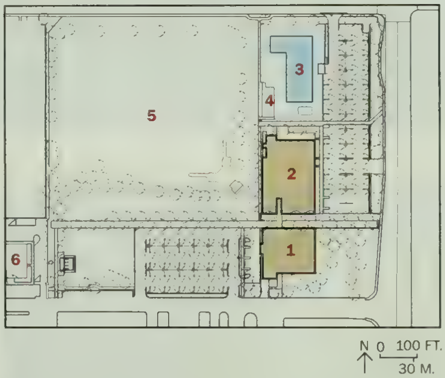
y Clifford A. Pearson

Just as balancing the mind and body can create a healthy person, integrating learning and physical activity can produce a successful community hub. Such was the thinking behind the Palo Verde Branch Library and Maryvale Community Center, which pened in January on the west side of Phoenix and represents an nusual collaboration between two city agencies, the library system and he parks and recreation department, and two local architectural firms—ould Evans and Wendell Burnette Architects. While the Phoenix office f Gould Evans—headed by Jay Silverberg, AIA—and the architect Vendell Burnette, AIA, had both established reputations for inventive esponses to the desert environment, the city agencies had pursued very ifferent approaches to architecture in the past, with the library system iring innovative Modernists such as Will Bruder and Richärd + Bauer ECORD, May 2006, page 152, and January 2006, page 96], and the parks epartment viewing building in a more utilitarian way.

Bringing different people and functions together served as an ssential theme running throughout this $5.8 million, five-year-long roject, and in the process helped link two distinct eras. Like Leavittown n Long Island, New York, Maryvale started as a post–World War II subrb fueled by easy automobile access and low-interest G.I. loans. In hoenix, developer John F. Long built not only affordable houses for eturning veterans, but worked with California architect Victor Gruen to reate a hospital, post office, shopping center, library, community center, wimming pool, and public park. But unlike its eastern cousin, Maryvale rew up to become a troubled community, as middle-class families noved farther out and crime moved in. Long, however, didn't give up on laryvale. He pushed the city to reinvest in the struggling neighborhood nd helped pass a bond issue to pay for the new branch library and community center to replace inadequate existing facilities.

Gruen's master plan for Maryvale featured a park, around which ood the hospital, shopping center, library, pool, and community center. Vhen the city began work on the new library and community center, it lanned to retain the swimming pool but use some of the parkland for the ew buildings and extra parking. Silverberg and Burnette, however, argued r keeping as much of the park as possible while retaining its baseball iamond and playing fields. "This was the green heart of Maryvale," says urnette, "and we wanted to keep it that way." To do that, the architects ned up the new buildings on axis with the existing pool along the east side f the site and convinced the city to grant a variance reducing the number





1. *Library*
2. *Community center*
3. *Swimming pool (existing)*
4. *Bathhouse (existing)*
5. *Playing fields*
6. *Old library*

Project: *Palo Verde Branch Library and Maryvale Community Center, Phoenix*

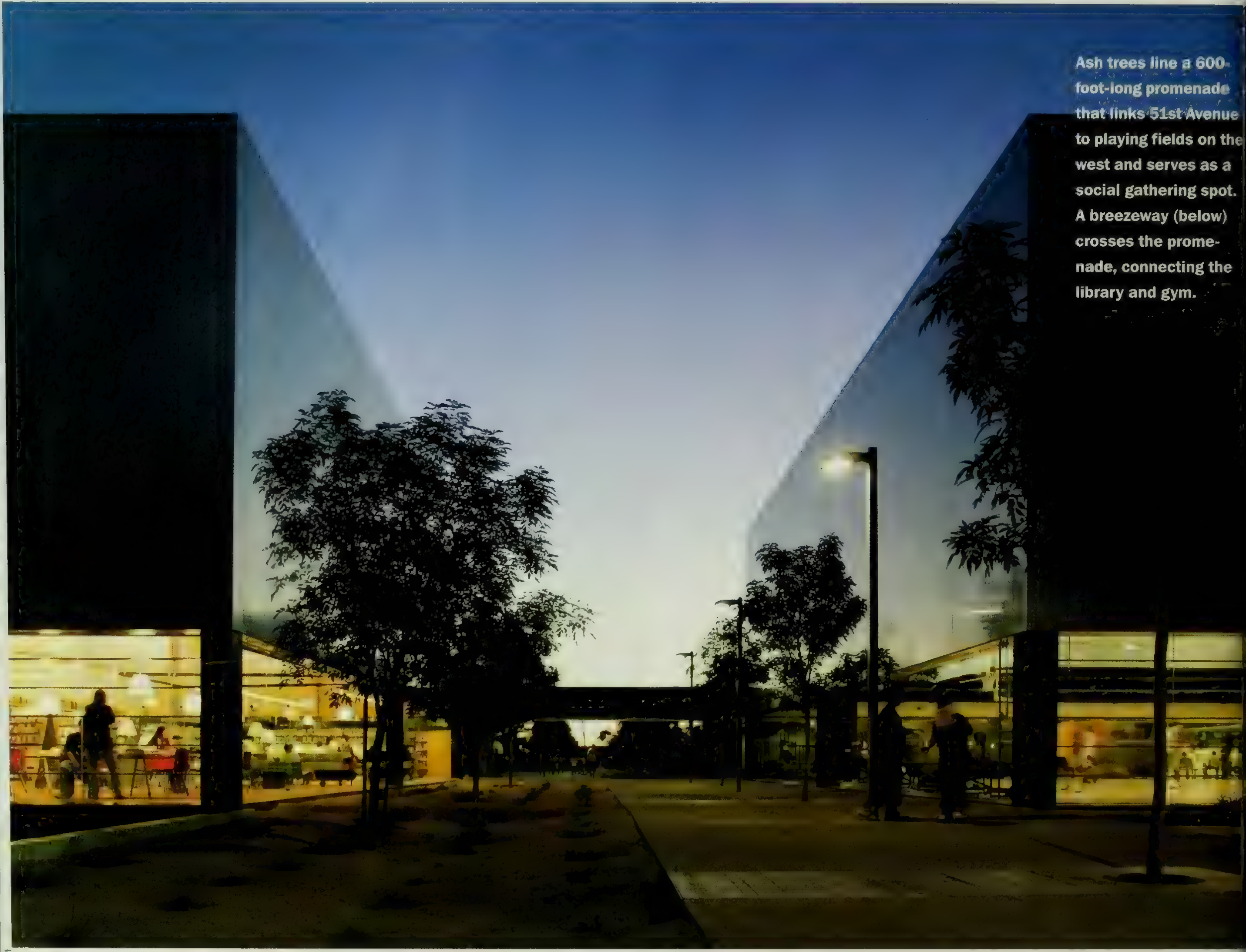
Client: *City of Phoenix*

Architect: *Gould Evans and Wendell Burnette Architects—Jay Silverberg, AIA, Wendell Burnette, AIA, principals in charge of design; Ron Geren, project manager; Patrick Magness, project architect; Jenell Bass, Shawn Croissant, Jennifer Little, Jose Pombo, Scott Roeder, Matthew Trzebiatowski, design team*

Engineers: *Rudow + Berry (structural); Kunka Engineering (mechanical, plumbing); Associated Engineering (electrical); WRG Design (civil)*

Consultants: *Ten Eyck Landscape Architects (landscape); Horton, Lees and Brogden (lighting); Wardin Cockriel Associates (acoustical); Thinking Caps (graphics)*

General contractor: *Smith Construction Management*

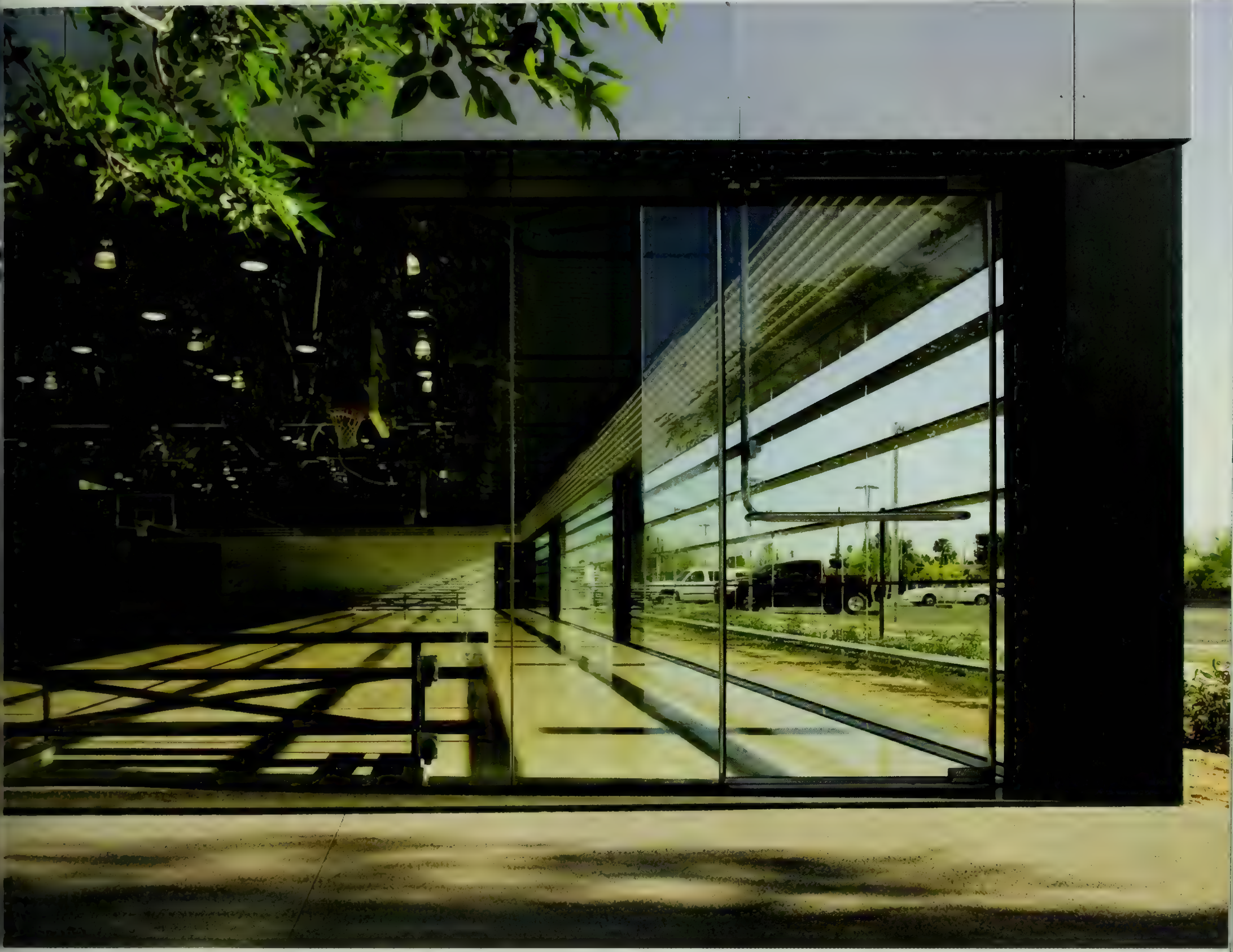


Ash trees line a 600-foot-long promenade that links 51st Avenue to playing fields on the west and serves as a social gathering spot. A breezeway (below) crosses the promenade, connecting the library and gym.

of parking spaces from 700 to 240. By establishing an intergovernmenta agreement allowing nearby school parking to be used by the library an community center in evenings and on weekends, the architects showed hov parking could be handled without destroying much parkland.

Lining up the new buildings on the east edge of the site facin 51st Avenue (a major north–south road) also gave the project a stron public presence, something the city had requested. But Silverberg an Burnette didn't want to create a wall of buildings separating the park t the west from the thoroughfare on the east, so they explored the issue o transparency in their architecture, eventually developing a design tha rests a pair of metal-clad blocks on 8-foot-high bands of clear glass. "W wanted to pull the park through the buildings," says Silverberg, "so yo could see the playing fields from the road." This strategy not only established an important urban link but created a sense of security by openin up views into and out of the buildings. "The old library and communit center were solid masonry buildings that felt like cell blocks," recall Burnette. "We wanted our buildings to feel open, transparent."

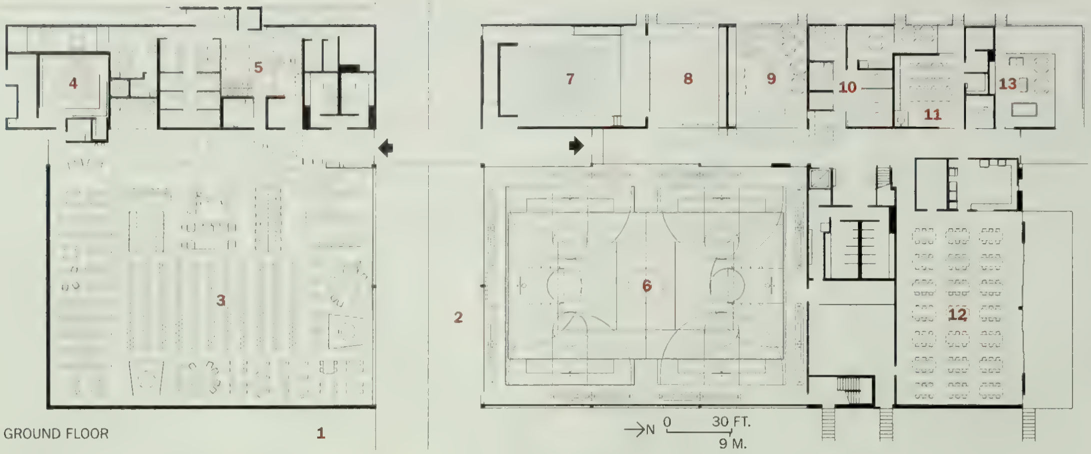
A tree-lined promenade also links 51st Avenue to the park an serves as a linear plaza connecting the two buildings: the 16,000-square foot library to the south and the 27,000-square-foot community center t



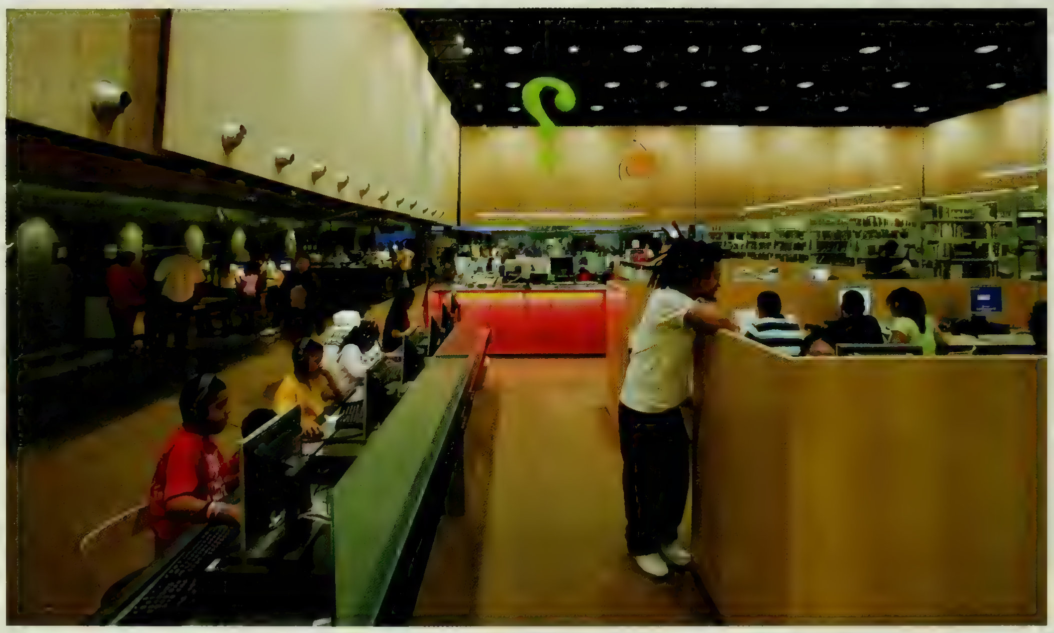
rizontal louvers ade glazing on the m's east side (above). e breezeway turns to a corridor inside e building (right).

the north. A second circulation spine running perpendicular to the promenade serves as an 8-foot-high corridor inside the two buildings and as a covered breezeway between them.

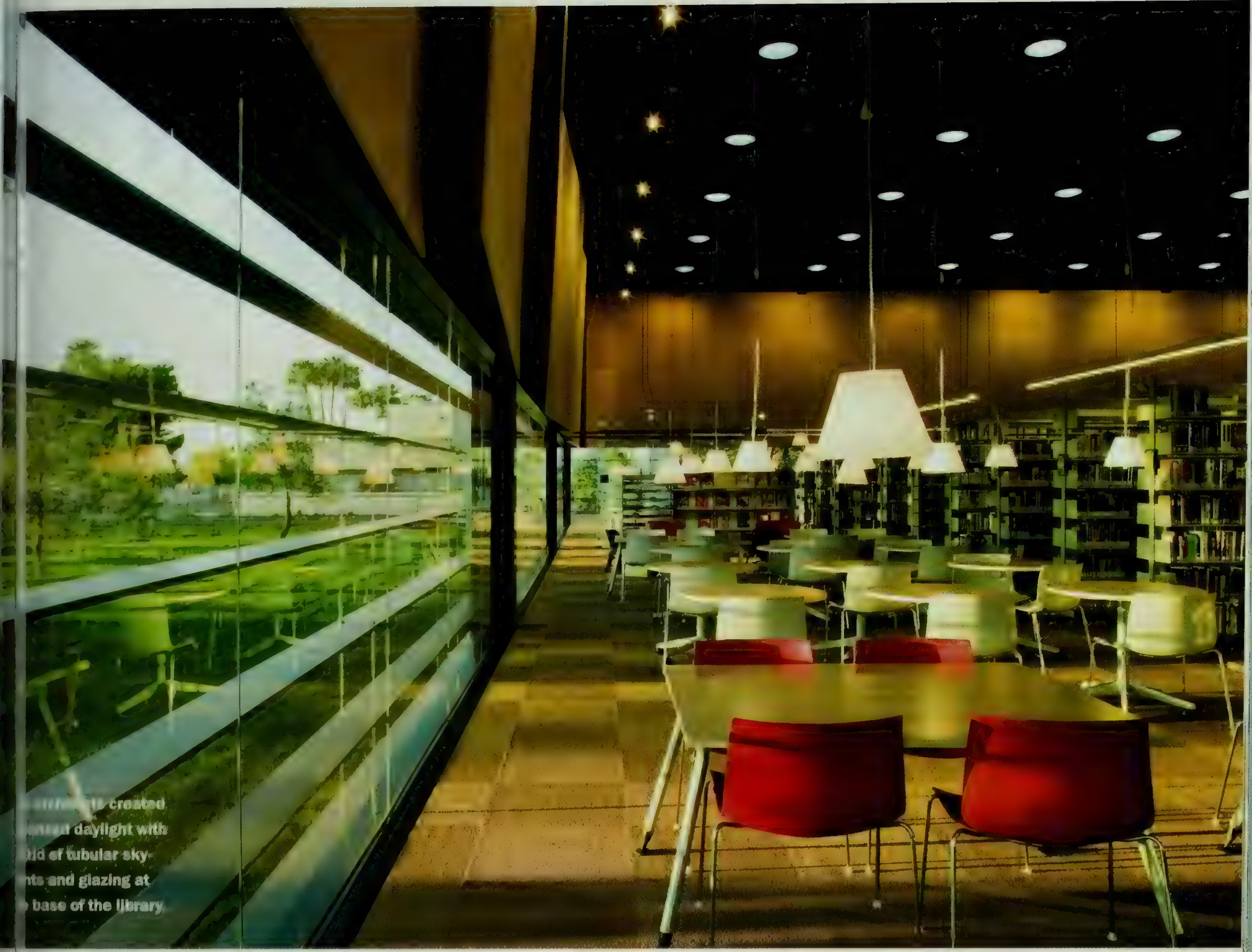
Although simple in layout and construction, the steel-frame, metal-clad boxes that house the library and community center deliver a emorable architectural experience by balancing opposing elements—exer- se for the mind on one side and for the body on the other; 8 feet of glass rtain wall on the bottom and 16 feet of mill-finish stainless-steel panels ove; and a low-ceilinged corridor that compresses space as you enter and -foot-high volumes that shoot up as you arrive in the two main function eas. To make the library and gym feel as big as possible, the architects signed them as clear-span spaces with steel joists that work as roof trusses. nother key part of the architectural balancing act was bringing daylight to the buildings from above and below—from tubular skylights reaching wn from the roof and from the band of 8-foot-high glass wrapping ound three sides of each building's base. Orchestrating daylight in this anner not only reduced the need for electrical lights, but eliminated glare r people reading in the library and playing basketball in the gym.



1. *Garden*
2. *Promenade*
3. *Library collections*
4. *Children's room*
5. *Administration*
6. *Gymnasium*
7. *Auditorium*
8. *Dance*
9. *Teen lounge*
10. *Administration*
11. *Crafts*
12. *Multipurpose*
13. *Senior lounge*



Although essentially one large, column-free space, the library offers a variety of different areas. Computer bars (left in photo at left) provide a communal experience, while workstations with higher partitions offer more privacy. Creating visual connections between the gym (bottom) and other parts of the complex was important to the client.



created
daylight with
id of tubular sky-
nts and glazing at
base of the library.

In addition to daylighting, the architects incorporated a number green design strategies in the project. To reduce the impact of the sun the west side of the complex, they specified post-tensioned masonry ɔcks with a high-insulation value. On the transparent band around the ıer sides, they shaded the glass with horizontal metal louvers projecting ɔm the curtain wall. Inside each of the main volumes, they created an terior skin (made of oriented strand board for the library and perfo- ted metal panels for the gym) that provides a gap between the ildings' exterior metal envelope and lets hot air rise and escape through nts. A water-cooled heat-pump system and below-floor air distribution ɔund perimeter glazing also reduce energy use. Outside, landscape chitect Christine Ten Eyck planted Arizona ash trees along the prome- de to shade the buildings, and a grove of palo verde trees in the parking to reduce the heat-island effect. Throughout the project, the architects ecified environmentally reponsible materials, such as formaldehyde- e batt insulation, recycled rubber flooring, and mill-finish stainless steel at requires less energy to produce (and costs less).

By designing the two buildings as inexpensive "big-box" struc- res, Silverberg and Burnette saved money for extra elements, including nezzanine-level running track around the gym and separate teen and senior lounges. In the library, they warmed up the space with casework made of medium-density fiberboard coated with a satin-lacquer finish and accents of bright red chairs and a glowing red circulation desk.

Although modest in scale, the Palo Verde Library and Maryvale Community Center is helping to reactivate the heart of Maryvale. According to the architects, library usage is up more than 65 percent, and the gym and community center are now drawing people from both the African-American and Hispanic communities, the two largest groups in the area. Keeping architectural and social elements in balance, Silverberg, Burnette, and their team have created common ground for a community on the mend. ■

Sources

Mill-finish stainless-steel rain screen: *Elward Construction*

Post-tensioned insulated masonry: *SuperLite Block (Integra wall system)*

Interior millwork and casework: *Custom by ForeSite Construction*

Tubular skylights: *Natural Light*

Acoustical ceilings: *Alpro*

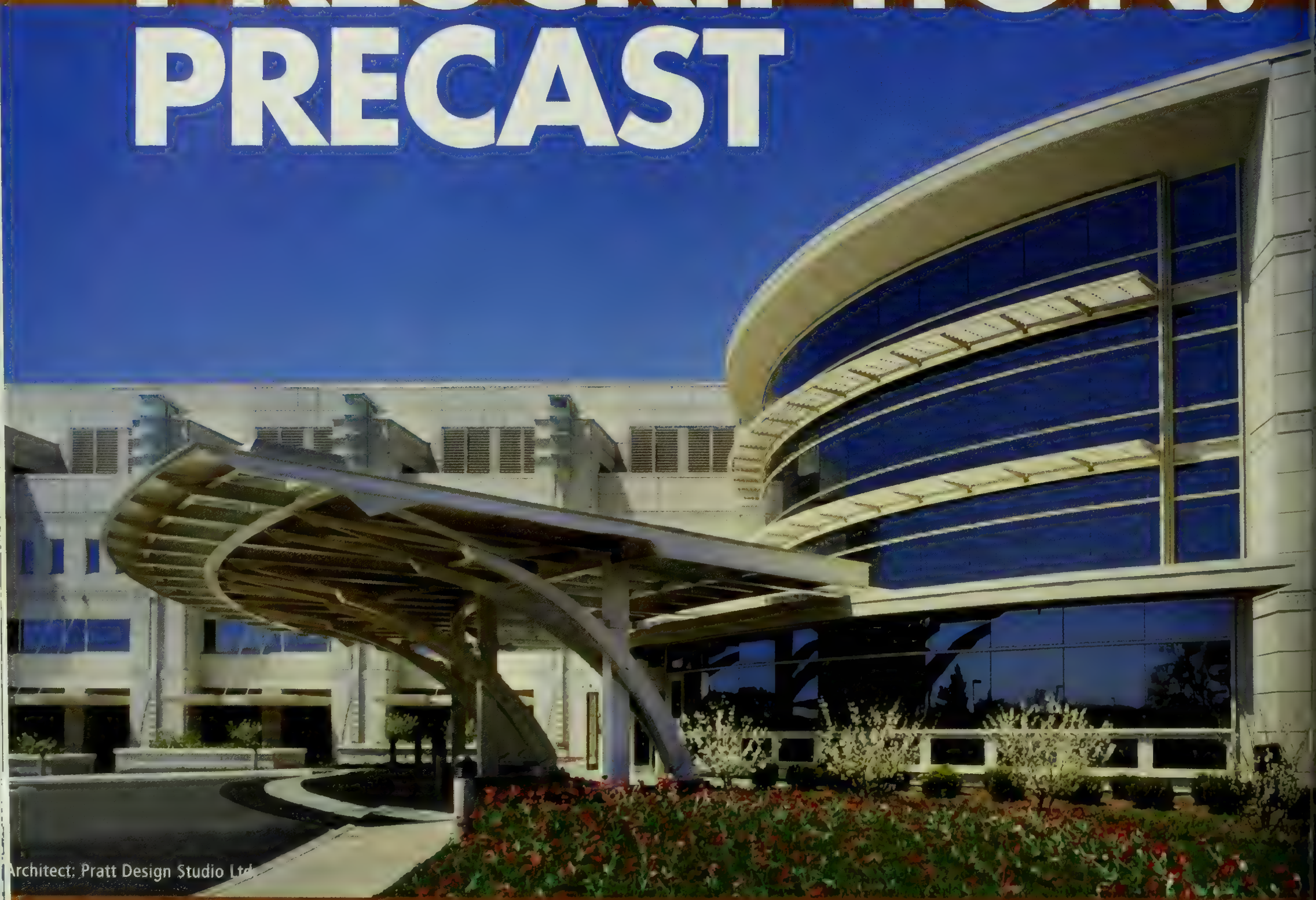
Raised flooring: *ASM (FS series)*

Exterior lights: *Lithonia; Winona*

Interior lights: *Lithonia; TPG; elliptipar*

For more information on this project, go to Projects at **www.archrecord.com.**

PRESCRIPTION: PRECAST



Architect: Pratt Design Studio Ltd.

Precast was the right prescription for the award-winning Condell Medical Center in Libertyville, IL. Architects chose High's precast because the uniquely articulated, stacked architectural panels were self-supporting, with vertical loads carried directly by foundation walls, which reduced structural steel framing costs significantly. And since designers were not sure when the facade would be constructed, precast ensured it could be done in any weather. High's unparalleled commitment to new technology and innovation has led to solutions like this and advancements including carbon fiber reinforced CarbonCast® — precast that's stronger, lighter, better insulating, and more durable, allowing a virtually unlimited selection of colors, textures, and finishes. And High's exclusive 15' and 16'-wide MEGA-Tee deck systems enable wider spans and more open plans with shallower tees in total precast buildings and parking garages. Projects such as Condell are possible with High's expert technical assistance in all phases of a project, from design to erection. High gives architects the flexibility to explore unique solutions while ensuring a job is completed on schedule and on budget. Call High to learn how precast can fill your prescription.

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Grand Statements

Three large hospitals serving major cities employ contemporary architecture to present a welcoming face for the increasingly technologically complex business of health care.

ANADOLU HEALTH CENTER

Gebze-Kocaeli, Turkey

Rees Associates and HAS Architects create a seismically sound hospital for offering state-of-the-art medical care in a restrained atmosphere of space and light.

BANNER ESTRELLA MEDICAL CENTER

Phoenix

NBBJ poetically transforms a desert greenfield site into an acute-care hospital to serve a rapidly growing collection of communities.

BELLEVUE AMBULATORY CARE PAVILION

New York City

Pei Cobb Freed & Partners adds a glass-enclosed atrium and patient facilities to the front door of one of New York's oldest and busiest hospitals.

r more information on these projects, go to Building Types Study at ww.archrecord.com.

By Russell Fortmeyer

Ten years ago, hospitals shuffled toward outpatient care and off-site medical office buildings to disperse patients, embracing a trend many thought would be the death knell of the sprawling acute-care hospital. How times have changed.

Big is back in health care. Doctors flock to big hospitals capable of shouldering the cost of keeping pace with technological change that seems to occur daily. Patients like the one-stop-shop mentality large medical campuses afford. And cities enjoy the economic engines of what are often the largest employers in town.

Architects have responded to this reemphasis on bigness by introducing a new vocabulary of design terms into health care in an attempt to prevent past mistakes—confusing floor plans, drab interiors, inflexible expansion capabilities, and inhospitable visitor accommodations—from branding another generation of hospitals as expensive eyesores. The industry's embrace of "evidence-based" design, which considers patient outcomes and staff satisfaction in determining environmental quality, has helped to nurture clients who value buildings that offer access to exterior views and daylight, encourage sociable staff exchanges, and are easy to navigate between departments and public areas.

The three projects we feature this month represent straightforward, restrained designs that position large hospitals as accessible, neighborly institutions in their communities. Anadolu Health Center, outside of Istanbul, establishes an outpost for the Johns Hopkins Medical Center in a region that will clearly benefit from an advanced level of health care in a building designed to withstand major earthquakes. Phoenix's Banner Estrella Medical Center represents a model for how a new hospital could be precisely planned to accommodate expected growth, while responding to the context of the Desert Southwest. The Bellevue Ambulatory Care Pavilion, on Manhattan's East Side, solves a common problem of older hospitals by embedding a stunning glass-enclosed atrium between a historic hospital building and new outpatient examination and treatment spaces.

These hospitals provide the proof that sometimes in health care less is more. Patients are tired of finding hospitals cluttered with the architectural wizardry of soffits, flimsy decoration, and multitudes of finishes and details. Owners are tired of operating hospitals that confine their plans for growth and leave no flexibility for new technology. Combined with an increasing awareness of sustainable design issues peculiar to health care and a still-burgeoning hospital construction boom, the evidence for good design is all around us. ■

One: ANADOLU HEALTH CENTER
Gebze-Kocaeli, Turkey

Rees Associates and HAS Architects collaborate on a state-of-the-art hospital in a seismically sensitive site outside of Istanbul.

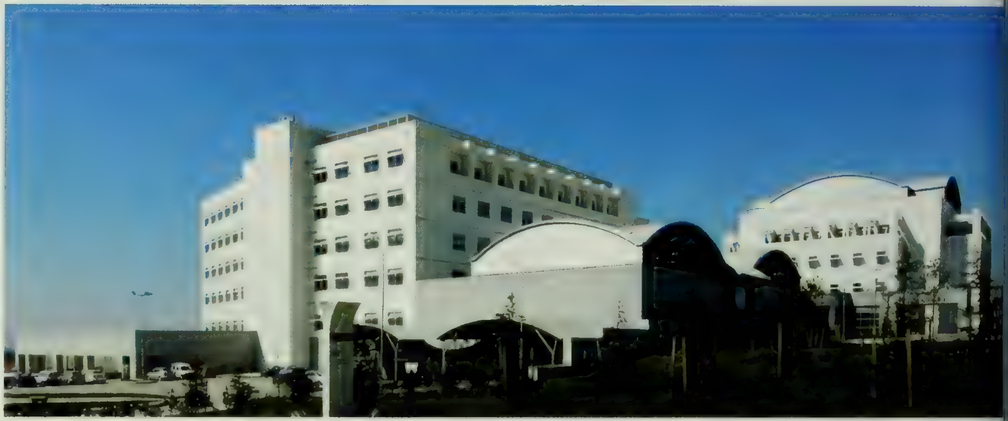
By Robert Ivy, FAIA

Architect of record: *Rees Associates—Frank Rees, Jr., AIA, principal; Walter Gregg, project director; William Howell, AIA, director of design; James Gary, health-care planner; Sung Chia; Jerry Hovorka; Kathy Potts; Melanie Compton*
Associate architect: *HAS Architects—Ayse Hasol Erktin, principal*
Client: *Anadolu Health Care Foundation System*
Consultants: *Arup (structural); Gurdal (mechanical); Enmar (electrical); Rees Associates (medical planning); DS (landscape design); Tekfen Engineering (civil); VanStavern Design Group (interior); Siemens (medical equipment)*

Size: *464,000 square feet (medical office building, 64,000 square feet)*
Cost: *$50 million*
Completion date: *February 2005*

Sources
Office furniture: *Nurus*
Reception furniture: *B&B Italia*
Carpet: *Interface*
Downlights: *ERCO*
Exterior, fountain lights: *Bega*
Corridor sconces: *I-Guzzini*
Patient rooms, surgery fluorescent troffers: *Trilux*

For more information on this project, go to Building Types Study at **www.archrecord.com**.



Set just off the axis of major highways connecting Anatolia and Europe, not far from a new airport in Istanbul, the strong, clear forms of the Anadolu Health Center project images of contemporary solidity to the surrounding countryside.

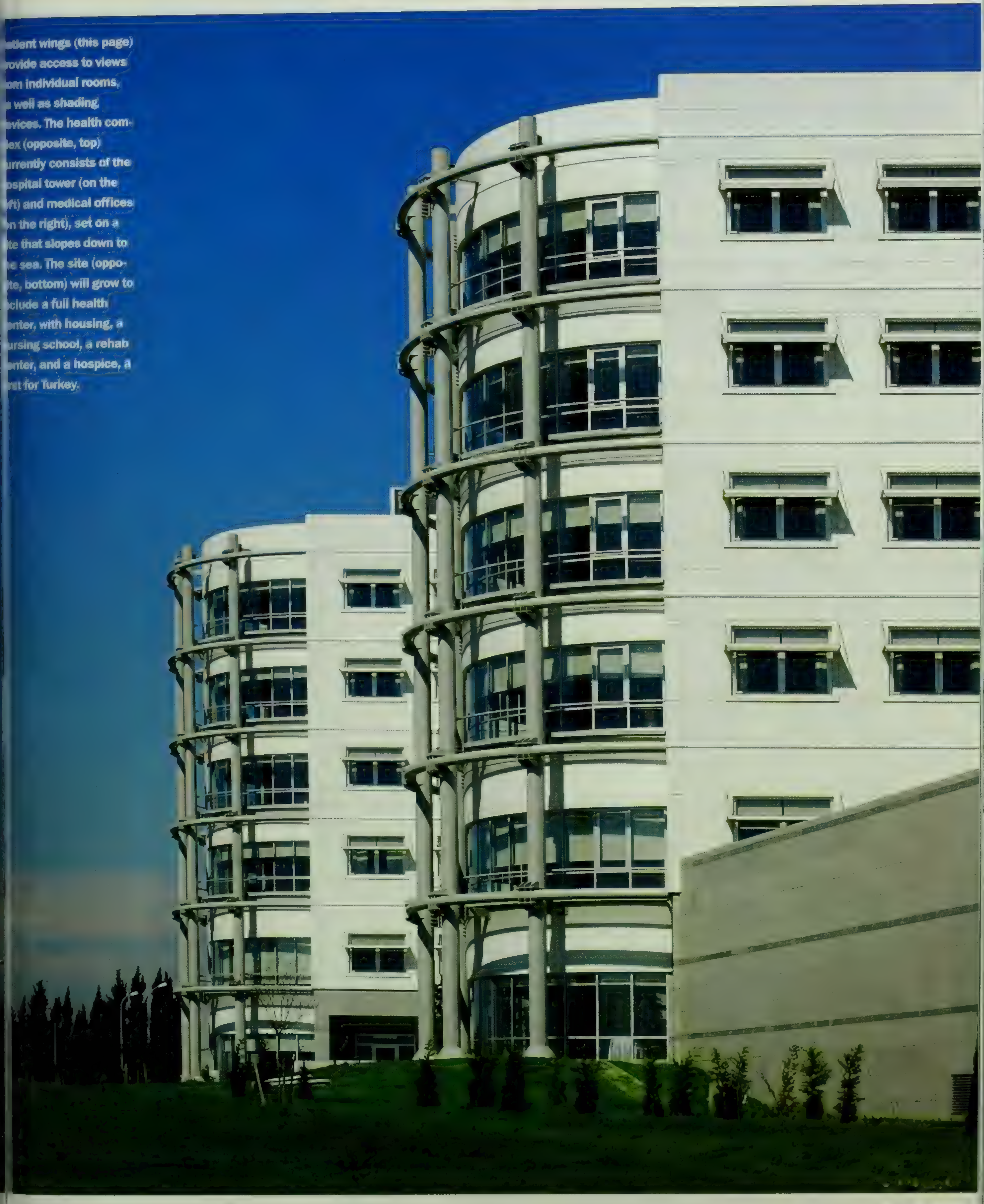
Located near Turkey's main industrial zone, which provides an automatic roster of patients, the hospital and health complex serves the immediate geographic area near the Sea of Marmara. However, its reputation as a health-care facility, coupled with its architectonic amenities, is drawing a clientele from throughout the Middle East and eastern Europe. The medical center, affiliated with Johns Hopkins Medicine, based in Baltimore, sits on a hilltop in Gebze, on an open site bordered by protected woodland, an experimental olive grove, and a clear view to the sea.

Program

The 209-bed acute-care hospital, medical office space, medical-related retail, and central plant form the initial investment in what will ultimately comprise a 2-million-square-foot campus outside Istanbul. Although it includes the latest treatment facilities, the entire complex has been organized in six levels on its sloping site in recognition of the natural environment, and to highlight what its designers cite as "protective medicine" for healthy living.

A green space at the core, complete with water features, distinguishes and links the three primary zones of the master plan, including medical, residential, and educational areas. Ultimately, the ambitious program will include a rehabilitation center, nursing home, and a hospice (a first for this part of the world). In addition, plans call for a 240-student nursing-educatio school, a 360-student allied health-education school, a student dormitory, and a 150-room hotel to serve patients' families and the residential needs of nurses.

The program's complexity was compounded by the site's seismic sensitivity: Because of the high level of activity in the area, located at the epicenter of the 1999 earthquake, the hospital would have to



atient wings (this page)
rovide access to views
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evices. The health com-
lex (opposite, top)
urrently consists of the
ospital tower (on the
ft) and medical offices
n the right), set on a
te that slopes down to
e sea. The site (oppo-
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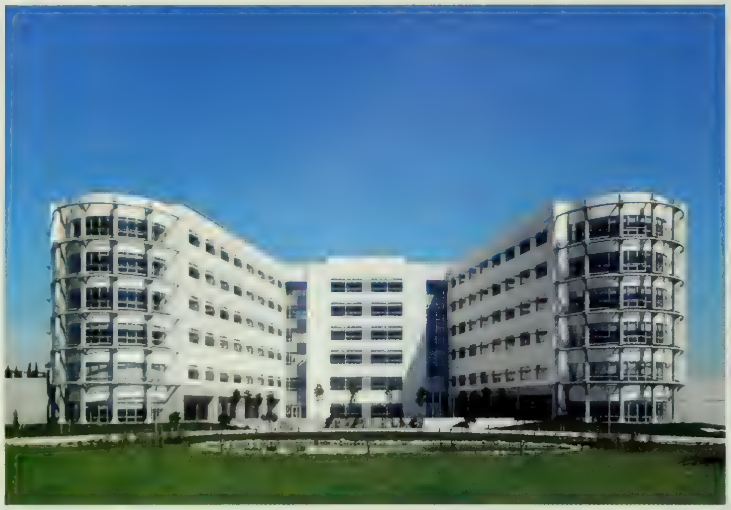
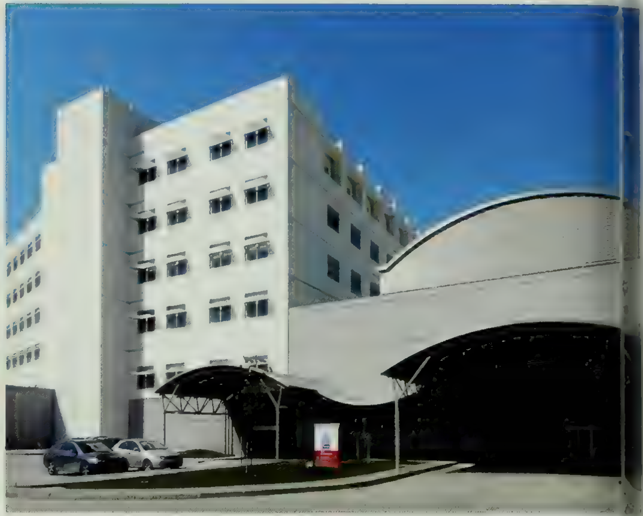
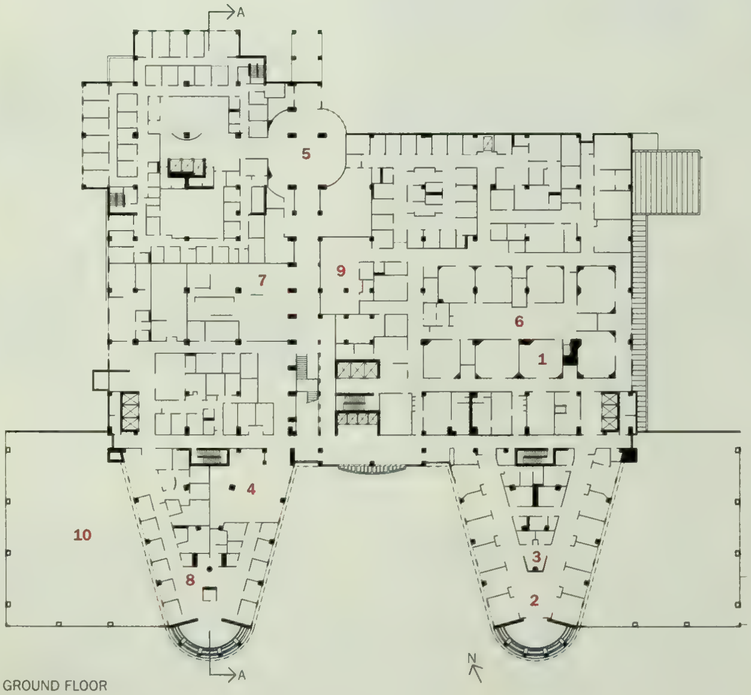
clude a full health
enter, with housing, a
ursing school, a rehab
enter, and a hospice, a
rst for Turkey.

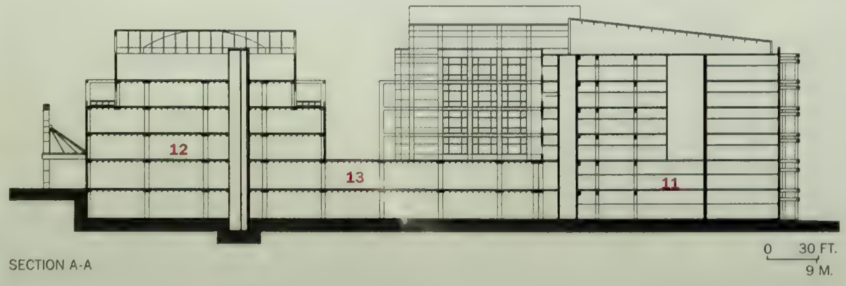




Patient rooms are divided between two main towers (above left). Circulation is segregated by function, such as the ER entrance (above) leading to a trauma area.



1. *Surgery*
2. *Typical ICU patient room*
3. *Nurses' station*
4. *Waiting room*
5. *Main lobby*
6. *Clean core*
7. *Admitting*
8. *Outpatient cancer center*
9. *Surgical holding*
10. *Green roof*
11. *Medical office building*
12. *Patient tower*
13. *Ground floor*

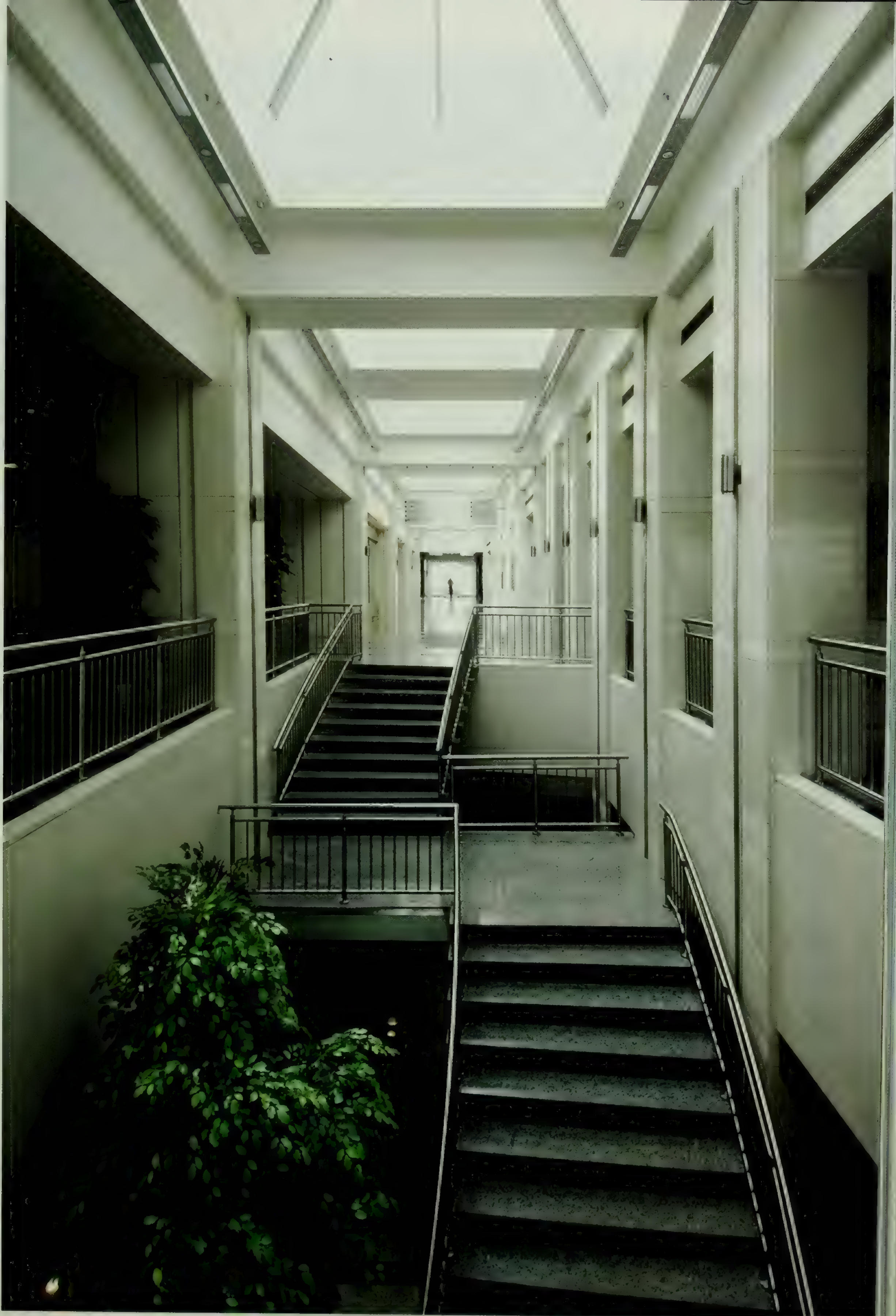


be designed for earthquake resistance, with a structure that could remain functional in the aftermath of a natural disaster. Foundations were required to rest 23 feet below grade, with waffle slabs capable of minimizing vibration levels in all surgical suites.

Although it is a sophisticated health-care project for Turkey, the combined resources of Oklahoma-based Rees Associates and HAS Architects, of Turkey, programmed and designed the initial facilities to allow a two-year construction period that met AIA and NFPA guidelines within a modest budget of $50 million. Ayse Hasol Erktin, a graduate of the Istanbul Technical University and Harvard's Graduate School of Design, was the principal in charge with the Turkish firm, a situation that helped the team achieve clear communication and common goals.

Solution

Organization of the large facility achieves clarity of function for the building occupants. Bright corridors enlivened by sunlight lead to vistas overlooking the nearby mountains. In a variant from the normal hospital



ublic areas provide
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xial organization
nd skylights illumi-
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egetation softens
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room arrangement, all patient rooms include views of the Sea of Marmara, with due consideration fo sun screening. In deference to the different communities that use the hospital, the design of circulation spaces allows for the separation of patients, visitors, and employees. Oncology patients, for example, have separate entrances, waiting spaces, and treatment rooms, providing them privacy from the general hospital population.

Constructed of 32-by-32-foot spans with reinforced-concrete columns, the solid structural syste permits flexibility and functionality of spaces. Waffle slabs of concrete reach between spans to disperse loads and minimize vibration for demanding surgical and treatment procedures. Polished local stone flooring lines spare interior corridors in primary public areas—a hard, reflective surface that mirrors the brightly lighted passageways. Patient rooms include a combinatio of residentially scaled furnishings in muted colors and modern healthcare systems that taken together evoke a pleasant hotel room.

The admitting area (above) and nurses' stations (below) feature muted palettes and wood finishes. The hospital employs straightforward contemporary simplicity throughout in furnishings and appointments, eschewing the need for elaborate decoration.

Commentary

Many of the Anadolu Center's accomplishments exceed those of typical health-care projects. Turkey' health-care professional "brain drain" has been partially stemmed by the Anadolu Center and its designation as a cardiology and oncolog specialty center. As a spur to furthe development in the region, the complex has stimulated the constructio of new roads; additionally, the center's developers have underwritten a local primary school. In recent polling, the hospital reports nearly perfect levels of patient satisfactio Projections suggested the hospital would break even by year's end.

For the country and the large region, the hospital succeeds in meeting or exceeding internationa standards. Architecturally, the center employs a clearly contemporar vocabulary to signal that Turkey is changing, in tune with the broader currents in Europe and the rest of the world. ■

atient rooms combine odern luxe with the eeds of today's health are (above). Wood trim nd furnishings soften teriors (below).

Bathrooms (right) contain amenities more commonly found in residential design, including elegant tiles and fixtures.

Two: BANNER ESTRELLA MEDICAL CENTER

Phoenix, Arizona

NBBJ designs a technologically advanced hospital with room to expand, at the crossroads of several growing cities.

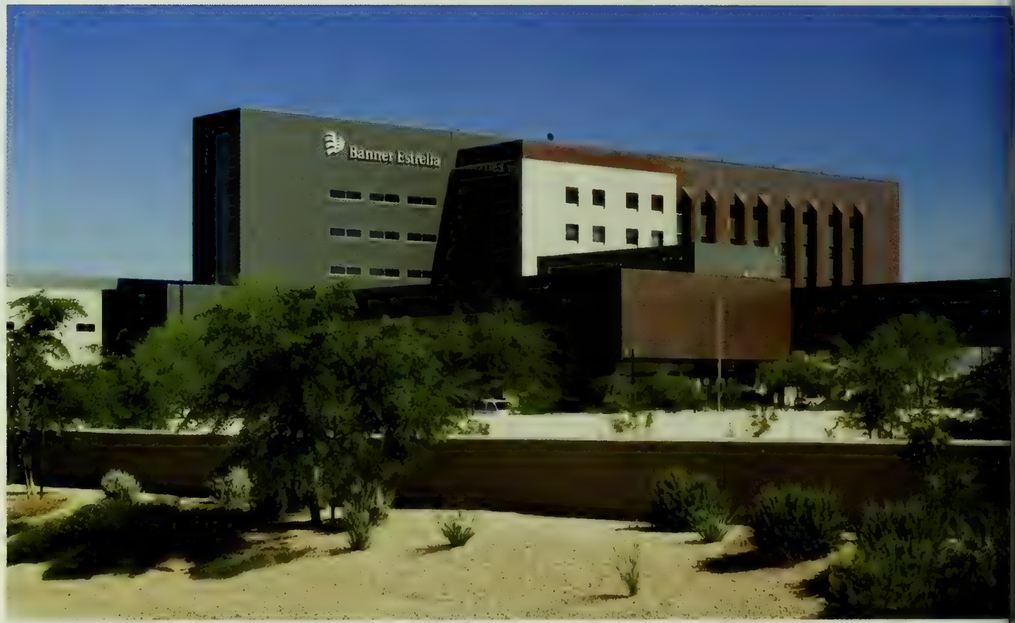
By Ingrid Spencer

Architect of record: *NBBJ—John Pangrazio, AIA, partner in charge; Rysia Suchecka, partner in charge of interior design; Christian Carlson, AIA, design principal; Scott Dunlap, lead designer; Robert Norwood, lead interior designer; Charles Martin, AIA, lead medical architect; Nancy Lim, project manager; Stanley Palmer; Hau Vong; Brian Uyesugi; Tammy Felker; Robert Smith; Ruben Gonzales; David Huang*
Associate architect: *Orcutt/Winslow Partnership*
Client: *Banner Health*
Consultants: *Syska Hennessy Group (m/e/p); Paul Koehler (structural); CMX (civil); Steve Martino and Associates (landscape); NBBJ/Syska (lighting)*

Size: *452,238 square feet*
Cost: *$91 million*
Completion date: *November 2004*

Sources
Glass curtain wall: *Wausau*
Copper cladding: *Kovac*
Doors: *VT Industries*
Office furniture: *Herman Miller*
Patient room seating: *Nemschoff*
Patient beds: *Hill-Rom*
Elevators: *Kone*
Lighting: *RSA; Bruck; Lithonia; Guth; Gotham; Bega*

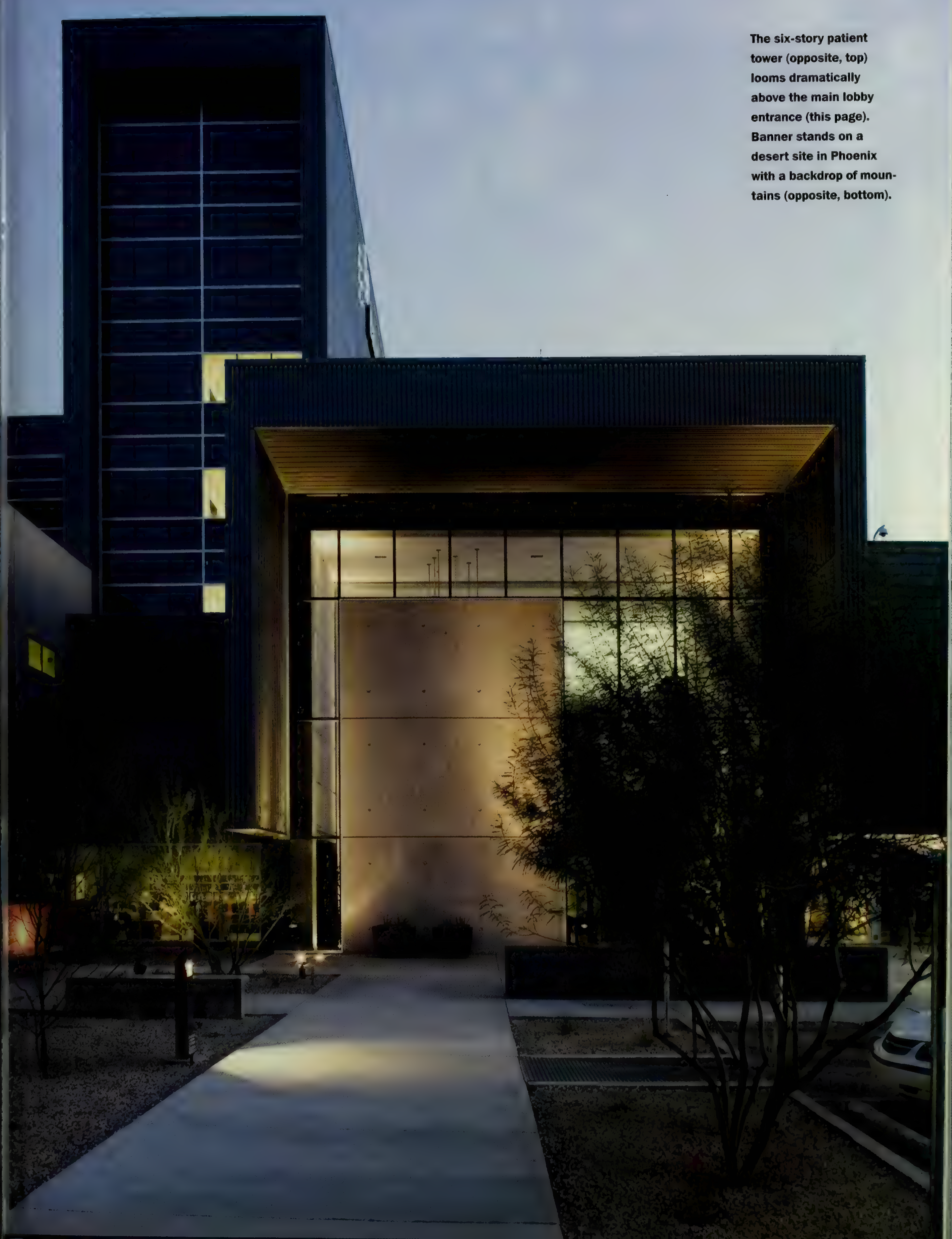
For more information on this project, go to Building Types Study at **www.archrecord.com**.



When officials at Banner Health asked designers from NBBJ's Seattle office to create their new, 452,238-square-foot hospital in west Phoenix, they said they wanted the place to be "warm." But NBBJ design principal Christian Carlson, AIA, disagreed with the term. "What does 'warm' mean in Phoenix?" he asks. "How about cool? A cool white tent in the desert." The folks at Banner were soon convinced, and the design team began their research. "It's rare to build a hospital from the ground up," says Carlson about the site—a 50-acre stretch of undeveloped desert that sits at the crossroads of two major freeways and is surrounded by the growing communities of Avondale, Buckeye, Glendale, Litchfield Park, Peoria, Surprise, Tolleson, and west Phoenix. "Our thought was, if we really got to do it right, what would we do?"

Program

As well as a soothing, healing place for people in a vulnerable state, the client had several other mandates for this medical center, which was meant to serve as a template for future Banner hospitals. Because of



The six-story patient tower (opposite, top) looms dramatically above the main lobby entrance (this page). Banner stands on a desert site in Phoenix with a backdrop of mountains (opposite, bottom).

A two-story building houses conference space and classrooms (top). The women's center, in the nursing tower, has its own entrance (above).

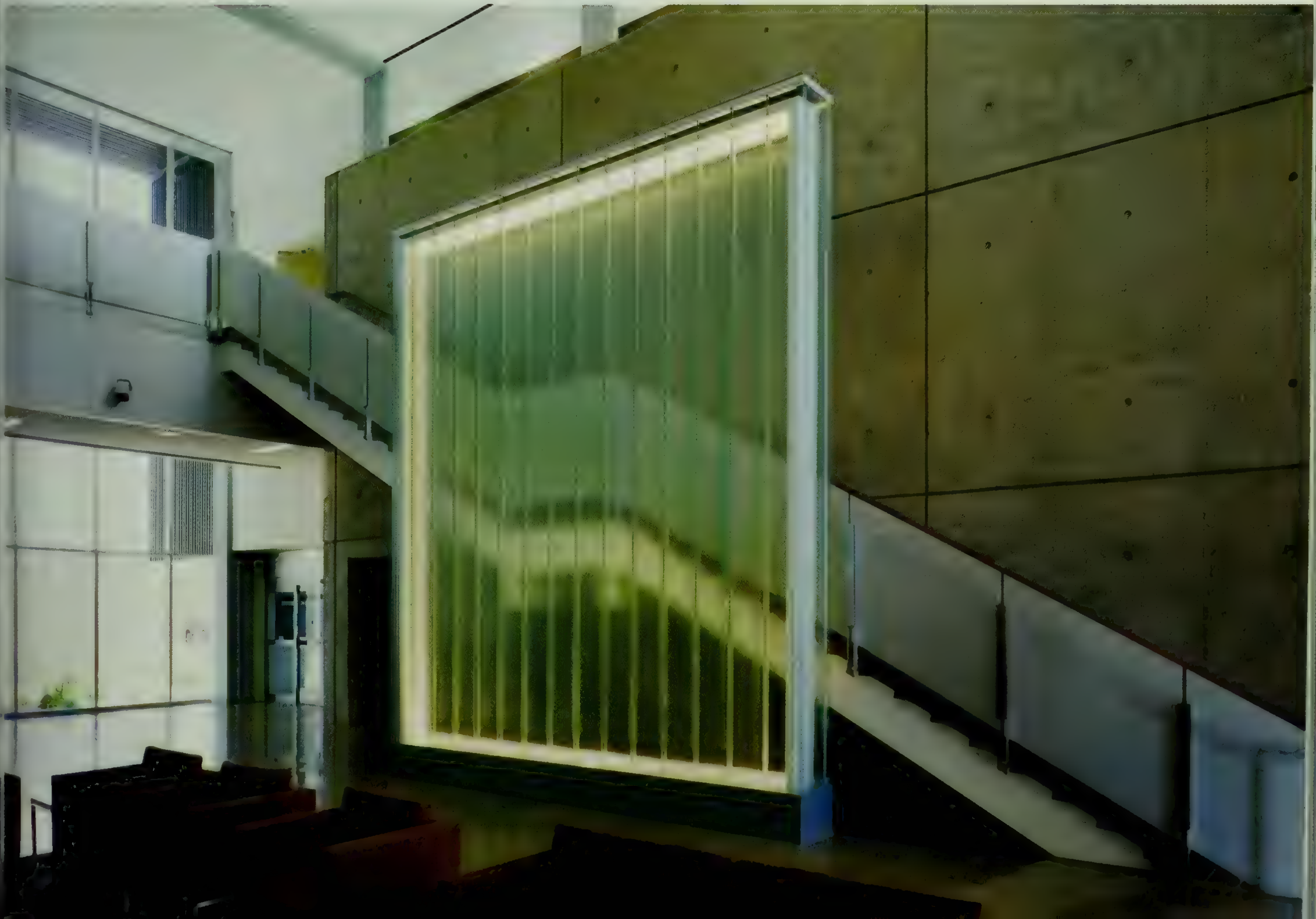
the rapidly populating communities it served, Banner Estrella was to be built for fast-track growth, with an almost Lego-like plug-and-play design that would accommodate tw additional towers and a total of 600 beds on its campus. Upon opening, the hospital would comprise a full-service, acute-care, 170-bed tower, medical office buildings, and an outpatient surgery center. Next, this hospital of the future needed to be technologically and architecturally advanced, and virtually paperless. Also, as a work place, the architecture would have to show that staff was nurtured as well as patients an their families. It had to attract and keep the best doctors, nurses, and hospital administrators.

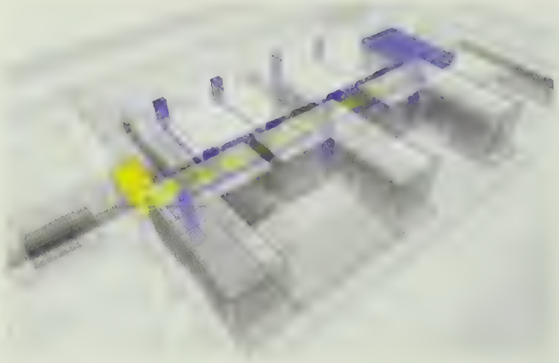
Solution

Simple tectonic forms make up the mass of the campus, which is structurally composed of only a few materials—tilt-up concrete, copper glass curtain walls, and galvanized aluminum siding—to hide its weigh and to allow for systematic growth. Circulation and utilities are arrange along an interconnecting spine, where modular pieces can be adde without moving the physical plant, the medical office buildings, or the lobby. Locating the central plant an loading dock 300 yards east of the main campus means that noisy coolant towers and emergency generators as well as supply trucks are away from patients. "Having a remote plant, two different growth axes for the campus, and locating infrastructure at the perimeter of the diagnostic and treatment building and in the center of the patient tower ensures that expansion won' be in conflict with patients now, an when renovation happens," says Bill Scrantom, senior vice president with the m/e/p engineering firm for the project, Syska Hennessey. "Thi hospital will not have to close for business while it's expanding."

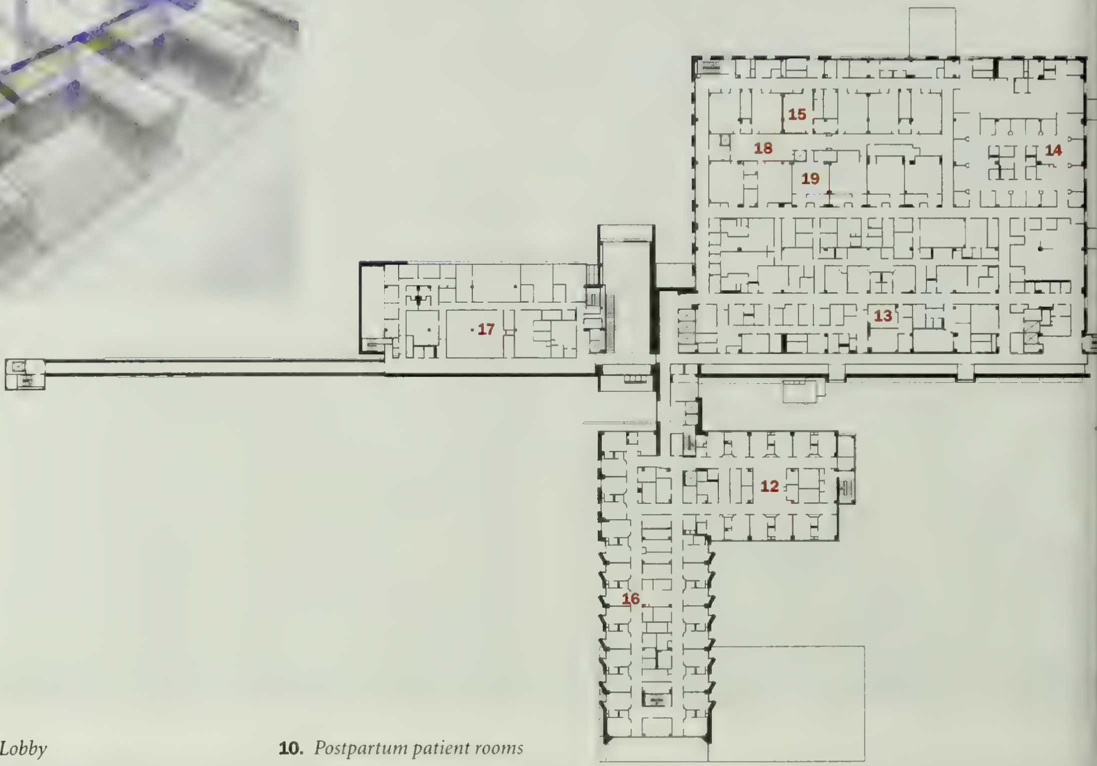
Carlson and his team designe a building using passive solar techniques, to create a connection to the dry canyons and mesas of the region, and to follow through on the "tent in the desert" metaphor.

The double-height lobby (left two), which features a gift shop, is flooded with indirect, floor-mounted lighting in the polished concrete floor. LED pendant lights are on an alternating sequence to produce a variety of colors (far left). The staircase is faced with a glass installation (below) that will eventually be fully engraved with the names of financial donors.



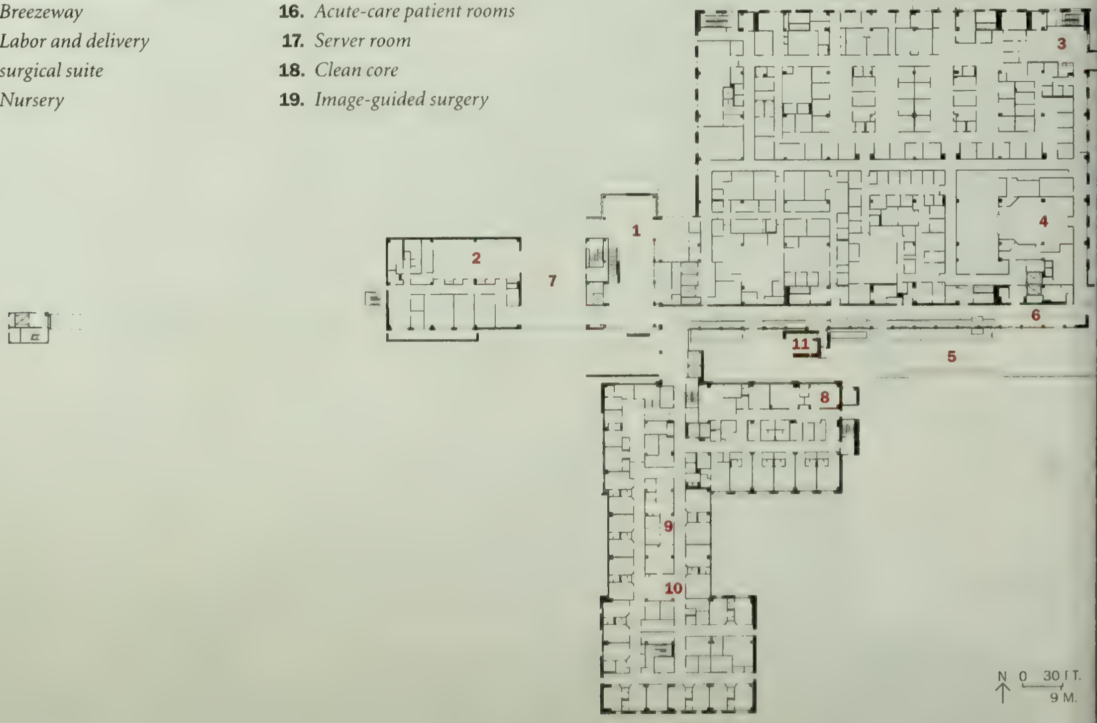


Banner Estrella was designed to be expanded along a main spine between the hospital and the central plant. Each new nursing tower or added component of the diagnostic and treatment building would be "plugged into" the spine (above).



SECOND FLOOR

1. *Lobby*
2. *Conference center*
3. *Emergency department waiting room*
4. *Cafeteria*
5. *Healing garden*
6. *Interdepartmental corridor*
7. *Breezeway*
8. *Labor and delivery surgical suite*
9. *Nursery*
10. *Postpartum patient rooms*
11. *Chapel*
12. *Adaptive-care patient rooms*
13. *Radiology department*
14. *Pre-op, post-op holding and recovery*
15. *General surgery*
16. *Acute-care patient rooms*
17. *Server room*
18. *Clean core*
19. *Image-guided surgery*



FIRST FLOOR

y includes an
don desk (right),
rects visitors to
n public corridor
t) that leads to
rooms, the cafe-
chapel, and a
garden (below).
idor sits atop
ent and tunnel
ds to the
d central plant
tains the hospi-
ity supply lines.

The main corridor (above left) includes spaces that encourage spontaneous staff conversations (above right). Postpartum patient rooms (below left) are larger and include sofas that convert to beds to accommodate visiting family. Pre- and post-surgery rooms (below right) offer patients privacy without sacrificing openness for staff.

the desert, anything that hap-
ns, either positive or negative, is
singular event," say Carlson. "With
it in mind, we designed the build-
; to act as a solar clock, with the
n playing a major role as it moves
ross the landscape." Degrees of
nsparency are determined by the
n, with vertical "eyebrows" shad-
; windows on the west side of the
tient tower, and horizontal hoods
ading windows on the south and
rth sides. Like an oasis or a
nyon, water runs sparingly along
e length of the building. A chapel
the center of this "stream" opens
o a garden with palo verde trees.
Inside the main lobby, the 35-
ot-high space looks more like a
tel/spa than a hospital, with walls
concrete and cool white acoustic
nels, Venetian plaster covering
uctural beams, and a mesquite
ood staircase. A walk down the
cond-floor staff corridor reveals
adows dancing through skylights,
d areas off the corridor that
courage spontaneous conversa-
n among the staff—especially
evant, as this hospital is one of
e first to eliminate departmental
fdoms by efficiently combining
rgery, radiology, and diagnostic
eas. Connie Harmsen, the former
inner Estrella C.E.O. who saw the
oject through to completion, says
ficiency is further realized in the
mination of traditional nurse sta-
ns, which give way to alcoves and
thering areas.

ommentary

nerging from a rocky first year
at required staff layoffs, as
idget volume targets were too
gh for a nonreplacement facility,
e hospital's finances have now
rned around. Patient- and
nployee-satisfaction surveys indi-
ite that the hospital's approach
working. The hospital is poised
begin expansion within the next
) years, beginning with the emer-
ency services area. NBBJ is already
the design phase of another new
ospital for Banner Health in
izona, using Banner Estrella's
ssential design, with some modifi-
itions, as a template. ■

The chapel occupies a central position in the healing garden, with large swinging doors that take advantage of Phoenix's better weather. The garden includes palo verde trees and desert roses.

Three: BELLEVUE HOSPITAL AMBULATORY CARE PAVILIO

New York City

Pei Cobb Freed & Partners add a gleaming, dramatic atrium entrance pavilion to one of New York's busiest and most historic hospitals.

By Russell Fortmeyer

Architect: *Pei Cobb Freed & Partners—Ian Bader, AIA, partner in charge; Richard Cutter, AIA, project manager; Bea Lehman, AIA, project manager; Andre Morawski, landscape architect; Deborah Young, AIA, interior designer*
Client: *New York City Health and Hospitals Corporation*
Consultants: *Cosentini Associates (m/e/p, lighting); Leslie E. Robertson Associates (structural); Mueser Rutledge Consulting Engineers (geotechnical); Cerami Associates (acoustics); Medical Planning Research International (medical planning); Turner (construction manager)*

Size: *210,000 square feet*
Cost: *$84 million*
Completion date: *March 2005*

Sources
Masonry: *Mt. Sinai Blend Face Brick*
Glass curtain wall: *PPG Solarban 60 clear*
Skylight: *Viracon VRE 1-46*
Granite: *Stony Creek Granite*
Cubicle curtains: *Carnegie Fabrics*
Desks: *Knoll*
Reception chairs: *Knoll (Life chairs)*
Downlights: *Kurt Versen; Lightolier*
Wood window blinds: *Capco Group*

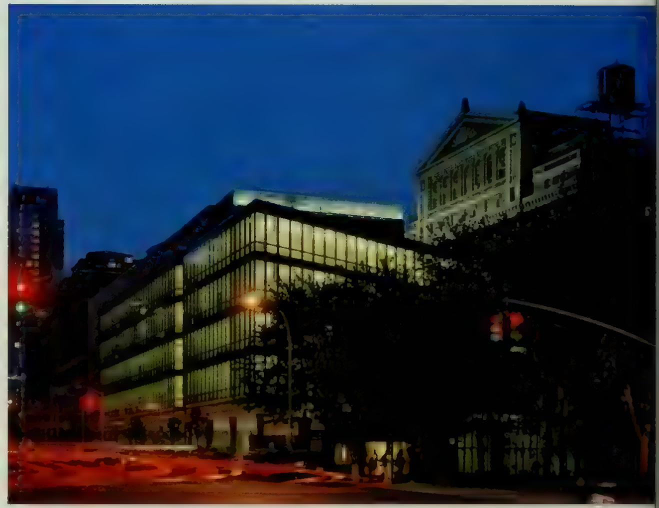
For more information on this project, go to Building Types Study at **www.archrecord.com**.

An estimated 10,000 people walk through the entrance to New York City's Bellevue Hospital every day, many of them surely unaware as they traverse Pei Cobb Freed & Partners' new glass atrium that the hospital is one of the oldest in the Western Hemisphere.

Bellevue has been caring for the city's people since 1736. Originally built as an almshouse at the Lower Manhattan site of City Hall, the hospital moved in 1794 to what was formerly an 18th-century farm, called "Belle Vue," along the East River between 25th and 30th Streets. The site today is a confusing complex of hospital buildings representing various design approaches, squeezed in the midst of a typically dense Manhattan neighborhood. McKim, Mead and White developed a master plan for the facility from 1908 to 1939 and gave the hospital a grand, stylized Romanesque administration building that acted as a front door for decades before disappearing behind a banal parking garage unceremoniously plopped onto First Avenue. Medical facilities continue north on First up to 34th Street, encompassing New York University's medical center. N.Y.U. operates Bellevue on behalf of the city.

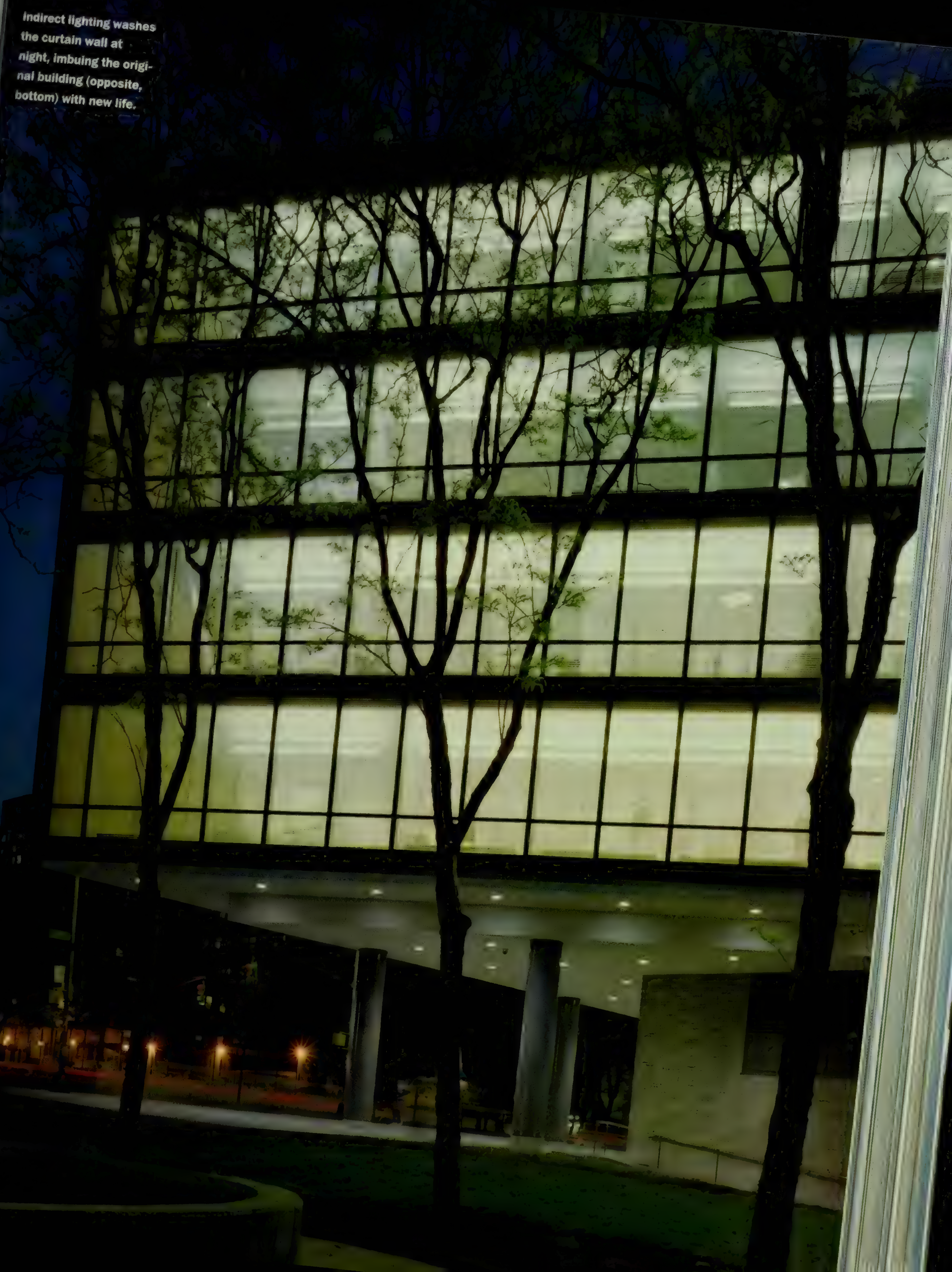
Program

In 2000, the hospital charged Pei Cobb Freed with the design of a new 210,000-square-foot ambulatory-care pavilion and main entrance for First Avenue. The five-story pavilion houses 270 exam rooms for noncritical hospital functions, such as dermatology, adult and child primary care, and a women's center, as well as an outpatient cancer center on an additional mezzanine floor tucked into the north side of the ground floor.



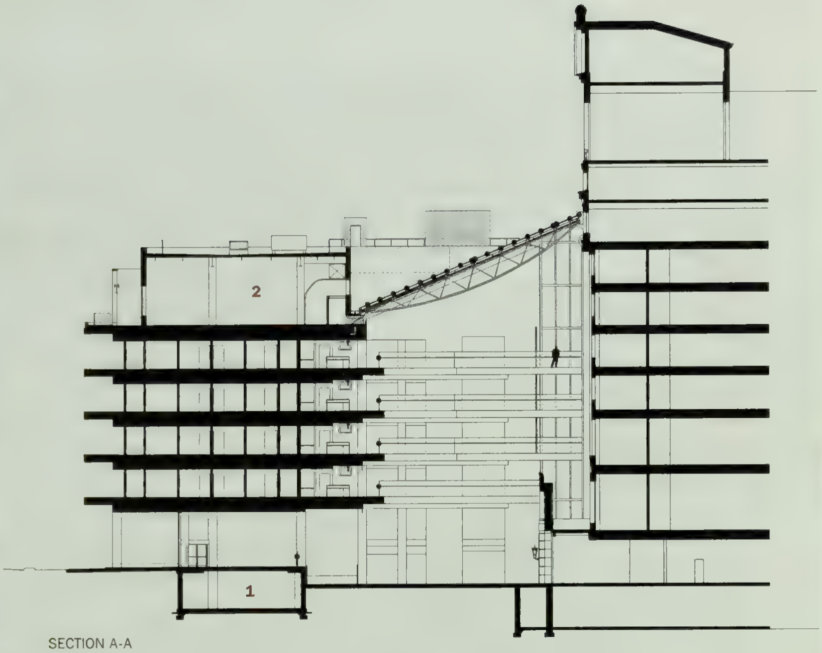
Initial plans called for placing the new building on the site of an adjacent garden, south of where the new building stands. Ian Bader, AIA, of Pei Cobb Freed, says that given Manhattan's lack of green space throughout the city, the design team felt it was important to preserve the garden and to open the ground floor to the public as much as possible.

By resituating the entrance back t the McKim, Mead and White build- ing, the architects restored the original symmetry of the hospital's First Avenue front door. "The new building is lifted up on columns to encourage you to look underneath to the stone portal of the existing building," Bader says. "At the heart of the dialectic between the two

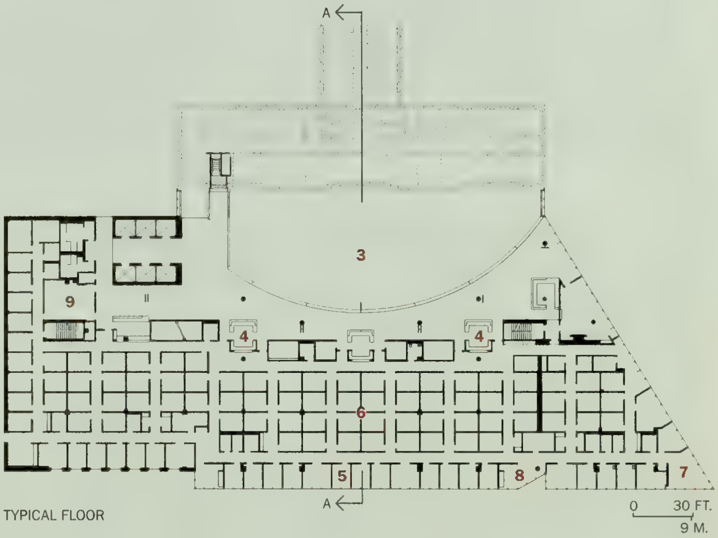


Indirect lighting washes the curtain wall at night, imbuing the original building (opposite, bottom) with new life.

Bellevue's atrium
allows for temporary
art exhibitions on the
ground floor, as well
hospital events in an
auditorium at the sou
end of the ground flo
Nearly 10,000 people
pass through the spa
every day.



SECTION A-A



TYPICAL FLOOR

ildings, we were able to create a
ace for the public."

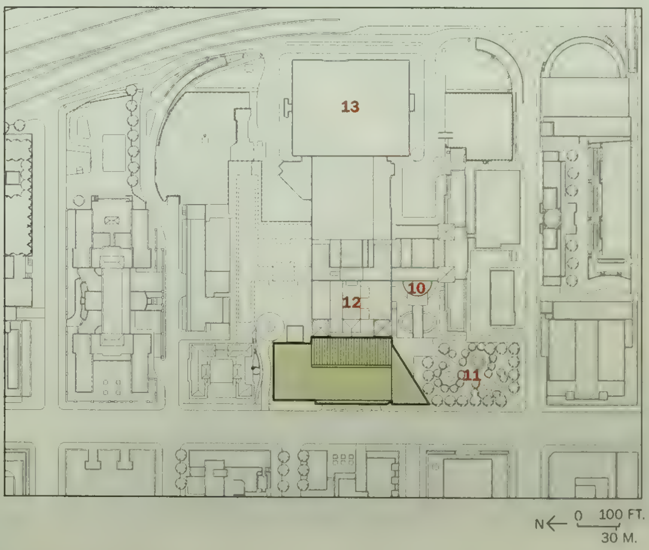
olution

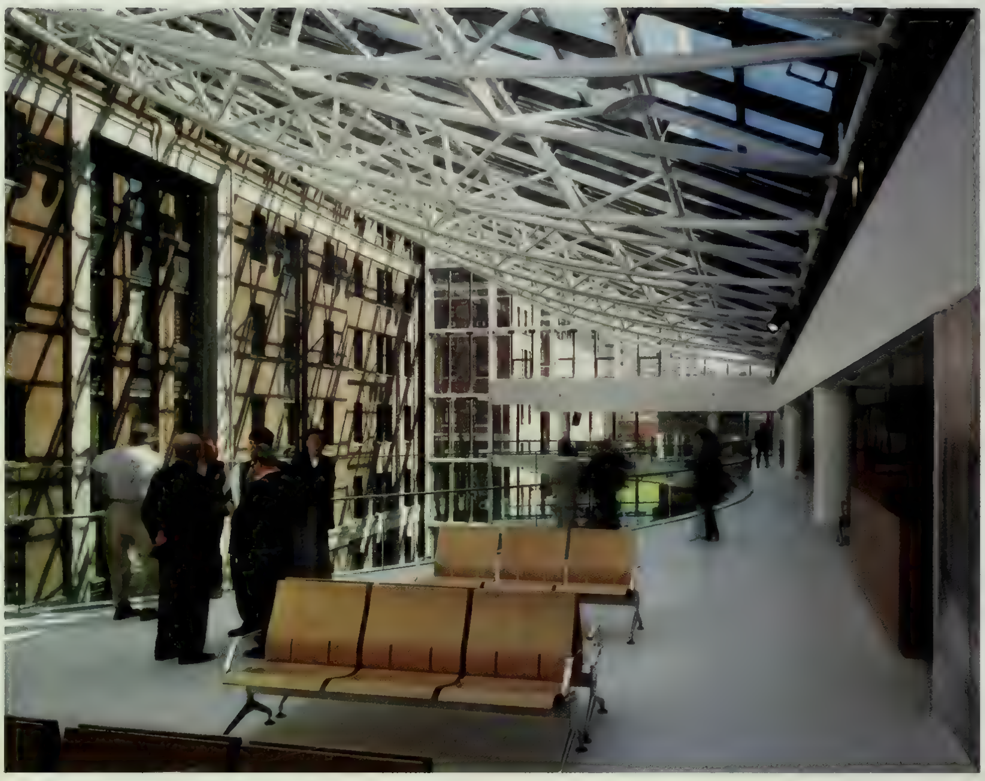
e new building's ground-level
ansparency is achieved with 12-
ot-high sheets of glass set in a
annel and anchored to the ceiling
l along the front entryway. A ramp
kes visitors down the 5-foot eleva-
on change from the street to the
onnecticut granite floor of the hos-
tal's new atrium lobby.

The atrium structure, consist-
g of 65-foot-long, 11-foot-deep,
iplike bowed steel trusses, rests
on a new structure inserted in
e McKim building's seventh floor
st below the cornice line. The
ass curtain wall abuts the brick
ilding with an accordion joint,
aranteeing the new building
uld be removed without damag-
g the integrity of the McKim, Mead
nd White structure. Bridges to the
isting building on the second
rough fourth floors are hung from
e elevator core on the north side
the building, appearing to float,

Pei Cobb Freed developed the color-coded alphabetic way-finding system iconically displayed on Bellevue's original entrance (top).

1. *Mechanical room*
2. *Mechanical penthouse*
3. *Atrium*
4. *Typical check-in and check-out desk*
5. *Typical office*
6. *Typical exam rooms*
7. *Conference room*
8. *Staff lounge*
9. *Classroom*
10. *Previous main entry*
11. *Existing garden*
12. *Original administration building*
13. *Existing hospital tower*





thanks to a sophisticated system of steel struts. The entire atrium is isolated from the ambulatory-care wing by a two-hour fire separation occurring along the spine between public and private program areas.

Each patient floor combines a distinct color scheme with a mural developed by the architects using photographs from the hospital's rich historical archive. Color schemes for exam rooms vary and corridors terminate in daylight views, ensuring that patients encounter distinct environments on each visit.

The building acts as a beacon at night, with the ceiling plane pulled away from the slab edge along the exterior curtain wall to indicate the full 12-foot, floor-to-floor height so perimeter indirect T5 fluorescent lighting can illuminate the curtain wall. At night, lights installed in windows in the existing building reflect off mirrors hung from the atrium structure to wash the entire brick facade.

Bowed trusses set on the original brick building, with atrium smoke-purge fans tucked into a grille on the opposite side (above). Staff lounges afford views of the neighborhood (left), while examination rooms accommodate the conventional requirements of ambulatory health care (below left).

Commentary

Contrary to most contemporary health-care design, Pei Cobb Freed's scheme at Bellevue exhibits a welcome restraint in color, materials, and formal bravado. Public areas pulsate with light and activity, as vibrant as a New York street. Examination rooms and offices are clearly organized and accessible. Not only is the pavilion functionally successful, the atrium is a model of finely tuned scale, perfectly balancing the spatial interface of the new building and the imposing grandeur of the original.

It's no surprise that Pei Cobb Freed, one of the most prominent American firms, has secured several more health-care projects in New York. Examples of the firm's other work in the city are as close to Bellevue as I.M. Pei's Kips Bay Plaza apartments, a classic Modernist concrete complex from the 1960s, a mere three blocks away. The firm's continued success is not an accident. The reconfigured Bellevue adroitly realizes that most difficult of design problems: adding a thoroughly modern building to a landmark while preserving the dignity of both. ■

PHOTOGRAPHY: © PAUL WARCHOL

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ORENSIC ARCHITECTS AND ENGINEERS EMPLOY INVESTIGATIVE TECHNIQUES, NOT TO POINT FINGERS, UT TO FIND THE ROOT CAUSE AND RECOMMEND SOLUTIONS FOR PROBLEMS THAT PLAGUE BUILDINGS

y Joann Gonchar, AIA

For the general public, mention of "forensics" most likely brings to mind television shows like the current *CSI: Crime Scene Investigation* or *Quincy, M.E.*, popular in the late 1970s and early '80s. For design and construction professionals, however, e word is associated with tragic collapses, such as the 1981 walkway ilure at the Kansas City Hyatt Regency, or this summer's ceiling mod- e collapse in a tunnel that is part of Boston's Big Dig.

It is no wonder that the term is associated with litigation. The yatt collapse, for example, which killed 114 people and injured another 5, is one of the most litigated building failures in history. At one time, e claims under review totaled more than $3 billion, according to enneth Carper, professor at Washington State University's School of rchitecture and Construction Management.

However, despite the protracted litigation surrounding some gh-profile failures, architects and engineers who specialize in investiga- ve work say they typically focus on less catastrophic building rformance issues, like water penetration or poor indoor air quality, and at disputes are often resolved without lawsuits. Carper estimates that ss than 5 percent of building failures end up in court.

In fact, many practitioners avoid the use of the term "forensic" nply because the dictionary definition "of or used in law courts" is not accurate description of their primary goals—to find the source of the oblem and propose a solution. "We call it 'root cause investigation,' " ys Robert Vecchio, principal of New York City–based Lucius Pitkin, Inc. PI), a firm that performs failure and material evaluation services. "We on't want to be considered hired guns," he adds.

A surveyor, suspended by a two-rope system similar to that used by climbers, evaluates and documents facade conditions of a historic building.

For the owner of a mid-1960s Midtown Manhattan office building, litigation was "never really a topic of conversation" when a 30-by-30-foot section of louvered curtain wall fell from the upper floors of the 35-story tower in February 2003, says Gary Mancini, principal of Thornton Tomasetti, the New York City–based engineering and architectural consultants called in to investigate.

The curtain wall section fell during an intense snowstorm in the early morning hours of a public holiday and no one was hurt. The streets, which would have typically been coming to life at that hour, were deserted. And the team's first task, as it would be after any failure, was to make certain that occupants and pedestrians were not subsequently put at risk. The investigative team's top priority "is to make sure the situation doesn't get worse," says Mancini. The police had cordoned off the street below, and Thornton Tomasetti, working with New York City–based contractor Structure Tone, used cables and netting to secure the failed area of the facade and the surrounding curtain wall.

Next, the investigators took a closer look at the remaining components at and near the area of collapse. They were particularly concerned about a concrete masonry block wall behind the section of failed curtain wall enclosing an elevator machine room. Typically, these types of walls are not reinforced and not tied to the building structure, explains Mancini. "It was never intended to be exposed to wind loads," he

CONTINUING EDUCATION

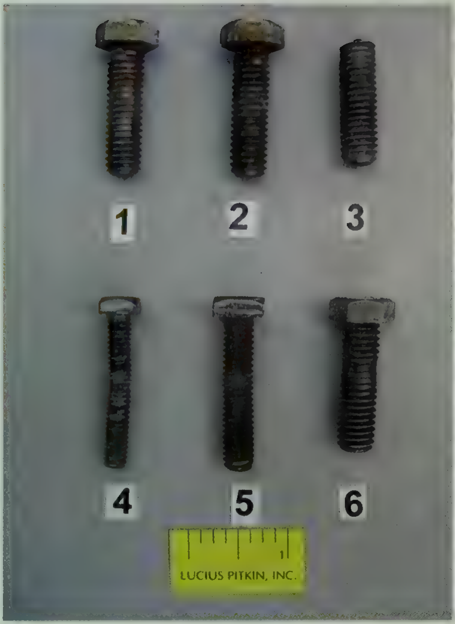
Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/*AIA Continuing Education article. To receive credit, turn to page 162 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found in the sponsored section beginning on page 169.*

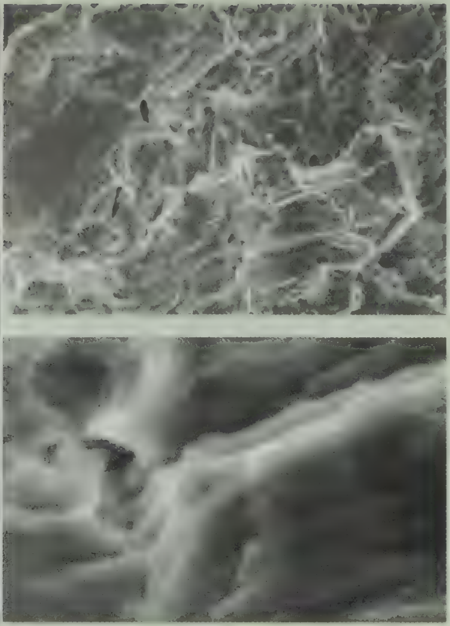
LEARNING OBJECTIVES

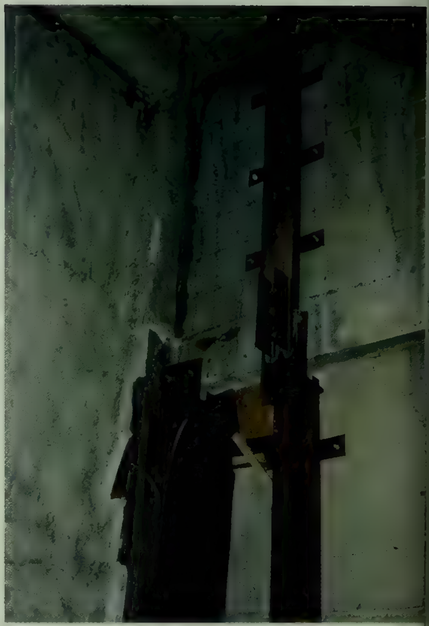
After reading this article, you should be able to:

1. *Discuss causes of building failures.*
2. *Describe methods of investigating building failures.*
3. *Describe methods of investigating water problems in buildings.*

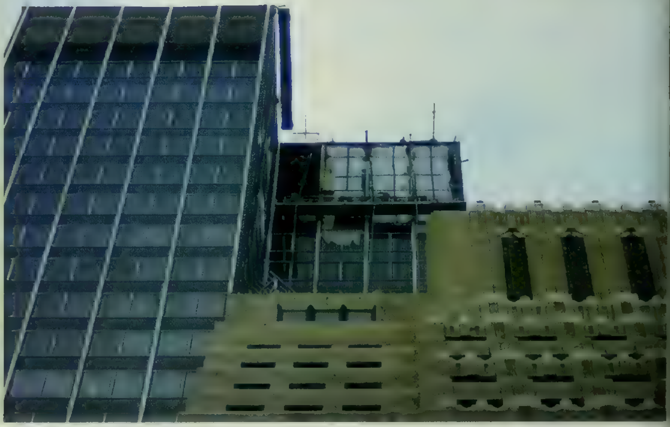
r this story and more continuing education, as well as links to sources, ite papers, and products, go to **www.archrecord.com**.







After a portion of louvered curtain wall fell from the upper floors of a Midtown Manhattan office tower (right), investigators braced a concrete masonry wall (above far right) and stabilized other surrounding construction. Debris was cataloged (above) and tested. Magnification of the surface of a fractured bolt revealed a pattern of failure consistent with fatigue (two images, above middle). But this bolt was not ultimately considered to have played a role in the collapse.



says. Although it showed no signs of impending failure, engineers devised shoring from steel angles and channels that the contractor had on hand. In addition, the outside face of these walls was covered with plywood.

After completion of the stabilization process, the team was free to focus its attention on the rest of the building envelope. It began examining representative sections of the facade and the connections between the curtain wall and the building structure wherever these were not hidden by interior finishes, finding many locations where bolts tying the mullions to the building's structure at spandrel beams were missing. Wear on brackets and plates indicated that fasteners had been originally installed but had backed out over time. The building was a relatively early curtain-wall tower, and the facade system did not use fasteners with locking devices, explains Mancini. "It was not until the '70s or '80s that these curtain-wall systems were refined."

At the owner's urging, the inspection quickly expanded to examination of all of the nearly 2,000 connections between the facade and the tower's structure. In the case of curtain walls, "there is no textbook [formula] for determining how much investigation is enough," says Eric Hammarberg, Thornton Tomasetti vice president.

Over the course of the next six or seven months, during weel ends and after normal working hours, the Thornton Tomasetti team ar the contractor examined every mullion bracket and spandrel beam cli These connections, hidden on both the exterior and interior, we accessed through the convection units within offices using a device call a borescope that links an objective lens to an eyepiece with a flexible tub

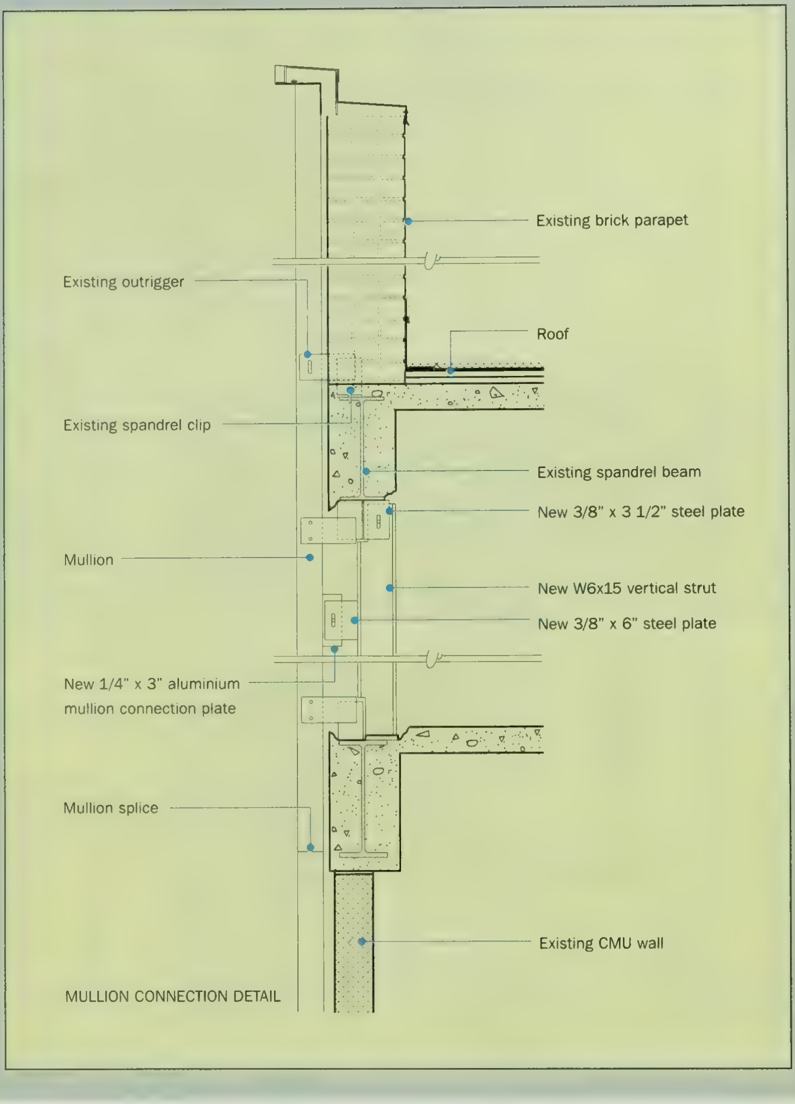
The investigators found that the locations with missing bol were concentrated primarily at the corners and at the upper floors, tl areas of the building subject to higher wind loads. When locations wi missing fasteners were found, the contractor replaced them on the sp with new stainless-steel bolts and nylon threaded nuts.

Concurrent with the examination of the mullion-spandrel co nections, Thornton Tomasetti was also trying to determine what made tl louvered section that fell during the February snowstorm particularly vu nerable. Using methods not so different from those employed by plane-cra investigators, the team cataloged the recovered debris and reconstructed tl facade in a vacant retail space on the building's ground floor.

Some debris was sent for metallurgical testing and microscop examination to Vecchio's firm, LPI. It tested the loading capacity of tl

LPI tested a portion of recovered mullion (below) from the Midtown Manhattan office building's failed section of curtain wall to determine the load-carrying capacity of the weld holding the clip to the mullion. However, no deficiencies were found.

The specified repair for the failed area of curtain wall (right) included construction of the previously omitted connections between the mullions and the building's structure.



MULLION CONNECTION DETAIL

lds attaching the connection plates to the mullions, but no deficiencies re found. LPI also examined other recovered components, including bolts used to secure the curtain wall to the building's structural frame. e majority of recovered bolts showed evidence of damage from wind ding. "The bolts had moved back and forth [within the clips and con- ction plates] to the point of rubbing off the threads," says Mancini.

One bolt with a missing head was recovered. Its surface, magni- d 7,500 times, revealed a pattern of parallel bands—an indication of lure due to fatigue, explains Vecchio. But the Thornton Tomasetti team uld not link the bolt directly to the failed area and theorized that it may en have been a stray bolt broken during construction.

OR CURTAIN WALLS, THERE IS NO EXTBOOK FORMULA FOR DETERMINING OW MUCH INVESTIGATION IS ENOUGH.

The final conclusion of the investigative team was that the vered section of curtain wall had failed because spandrel clips had en omitted at three different locations. "The outrigger plate had been stalled on the mullion, but there was no evidence it had ever been attached to clips on the spandrel side," says Mancini.

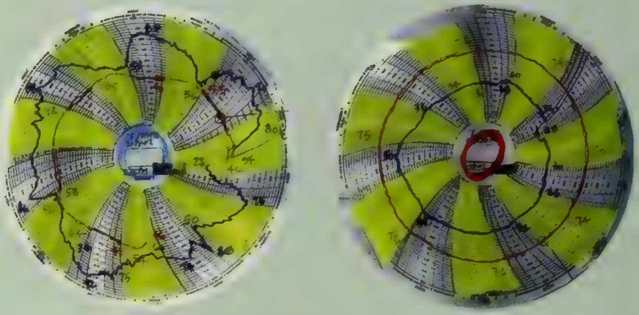
The reason for the absence of these connections is still unclear. It may have been a result of a field change, or due to the elevation of the spandrel beam, which was higher in relation to the surrounding structure on this floor than on others. Because of the floor's unusual configuration, there may have been a misalignment of the tie between curtain wall and building structure, according to Thornton Tomasetti. Although the reason for the omission is a mystery, the repair was straightforward. This work, completed in late 2003, involved replacing the failed section of curtain wall and constructing the omitted connections.

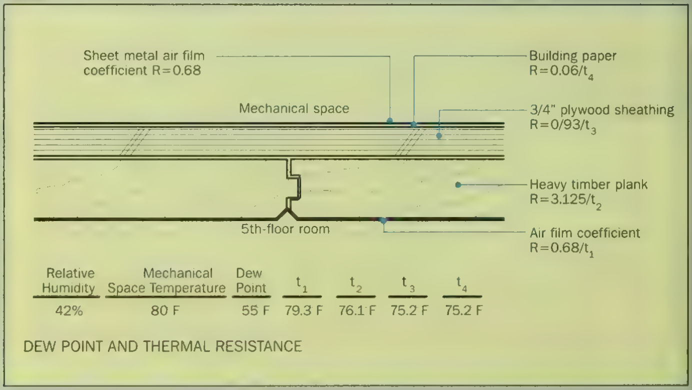
Water woes

More mundane than falling facades, but still vexing to building owners and occupants, is the common problem of water infiltration. The owner of an early-20th-century warehouse discovered that his heavy-timber and masonry-bearing-wall structure had this problem in the summer of 2001, just a year after its gut renovation and conversion to a corporate headquarters was completed, according to Dean Vlahos, AIA, a principal and head of forensics practice at Santa Monica, California–based WWCOT.

The owner, who asked that neither he nor the location of his

The owner of a former warehouse found evidence of water penetration in the building's mechanical space (left middle and bottom). Water testing (left) ruled out leaks in the enclosure as the source. Monitoring of temperature and humidity inside the space (below right) showed that both were constant despite fluctuations in exterior conditions (below left). Calculation of the surface temperatures of each of the materials in the floor assembly showed that all were above the dew point (bottom).




Sheet metal air film coefficient R=0.68
Building paper R=0.06/t_4
Mechanical space
3/4" plywood sheathing R=0/93/t_3
Heavy timber plank R=3.125/t_2
5th-floor room
Air film coefficient R=0.68/t_1

Relative Humidity	Mechanical Space Temperature	Dew Point	t_1	t_2	t_3	t_4
42%	80 F	55 F	79.3 F	76.1 F	75.2 F	75.2 F

DEW POINT AND THERMAL RESISTANCE

building be identified, called in Vlahos after signs of water infiltration were found in a mechanical space located on the roof of the original five-story structure and below a new penthouse. During a routine inspection of the area, a member of the building's maintenance staff had noticed that the sheet metal covering the floor was buckling. Pulling back the metal revealed mold growth and deterioration in the floor assembly below. Although it was clear that water was the culprit, the source was far from immediately apparent. It took WWCOT a month and "a lot of head scratching" to determine the cause, says Vlahos.

WWCOT's investigation at first focused on the most likely suspects—the mechanical space's metal panel enclosure and the adjacent roof, where some evidence of moisture penetration had also been found. The firm water-tested these areas by saturating the surfaces and then applying food coloring, using different hues for each location to track the water's path. WWCOT tested roof penetrations and the heads of doors, windows, and louvers—wherever deficient flashing might lead to leaks.

Vlahos and his team conducted the water test twice. They performed the test once with the HVAC systems on, and again with them shut down. He had noticed that during normal hours of operation, the mechanical space was highly pressurized. He theorized that if warm air seeping out of the ductwork was causing this pressurization, then the negative pressure created when the mechanical systems were turned off might be drawi water in through small gaps in the space's enclosure. But no sources water infiltration were found. "We couldn't get the building to leak," he say

The investigators next looked at condensation as a possib source. Fluctuations in temperature and humidity might cause moisture condense on the surfaces within the mechanical space. But monitoring both temperature and humidity for a week in early February showed th the space was roughly 80 degrees, with 42 percent humidity. The conditio did not vary with the exterior conditions and were relatively constan whether the mechanical systems were in operation or shut down.

Although the temperature and humidity inside the mechanic space were constant, Vlahos thought that condensation might still playing a role. At the prevailing environmental conditions, he calculat the surface temperatures of each of the components making up the flo assembly—sheet metal, building paper, plywood sheathing, and hea timber tongue-and-groove planks. If the surface temperatures were bel the dew point, condensation would form. Surface temperature is a fun tion of each component's material properties, thickness, and therm resistance, he explains. But this avenue of exploration also turned out be a dead end. The analysis showed that the surface temperature of ea of the layers of the floor assembly was above the dew point of 55 degre

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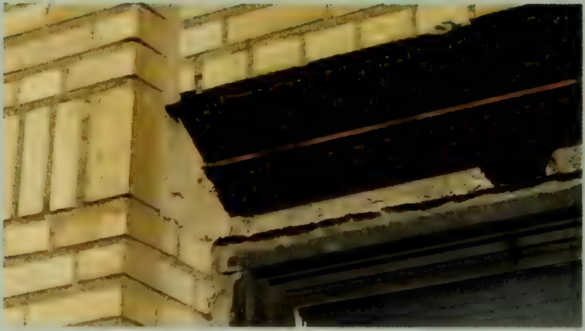
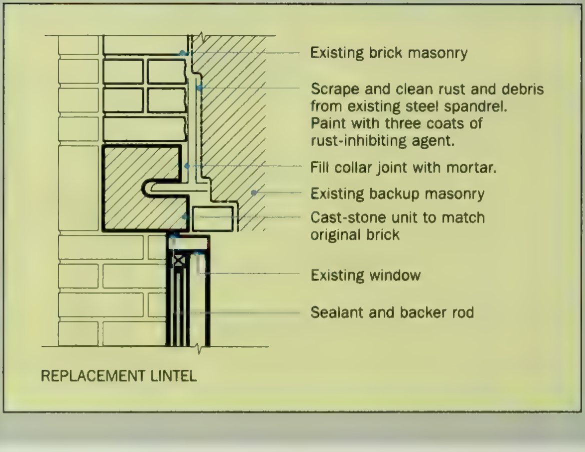
A facade evaluation and restoration is part of a project to convert the Williamsburgh Savings Bank in Brooklyn, New York (left), into condominiums. Deteriorated window heads (below) were one of many conditions revealed by the envelope-consultant's survey. Repair (bottom) will include replacement of specialized brick with cast stone.




Existing brick masonry
Scrape and clean rust and debris from existing steel spandrel. Paint with three coats of rust-inhibiting agent.
Fill collar joint with mortar.
Existing backup masonry
Cast-stone unit to match original brick
Existing window
Sealant and backer rod
REPLACEMENT LINTEL

The forensic team was stumped. "If the water is not from outside, and it's not from the inside, where was it coming from?" asks Vlahos.

Core samples of new wood used in the floor assembly had ruled out the possibility that these materials were already moldy or had too much moisture content when they arrived at the site. "We could see that the mold was not within the wood but was more topical," says Vlahos.

ALTHOUGH IT WAS CLEAR THAT WATER WAS THE CULPRIT, THE SOURCE WAS FAR FROM IMMEDIATELY APPARENT.

The clue that finally led to the source of water infiltration was vestiges of asphalt, found during destructive testing of the mechanical space floor and the adjacent roof. The asphalt, typically used to terminate completed areas of roof and prevent wind-driven rain from migrating underneath, was a sign of a wet construction season.

The asphalt, together with information from construction personnel interviews, refocused the investigation on the construction process itself. Intumescent paint, specified for the underside of the tongue-and-groove decking to increase the fire-resistant characteristics of the heavy
timber structure, was extremely difficult to apply, according to the co
tractor. In order to make the paint adhere, the construction crew appli
two, and in some areas three, coats of the paint, even though only one w
required. This difficulty was an indication that the wood was already w

An overlay of the construction schedule and precipitation da
for the 210-day period when contractors were roofing the structure a
building the mechanical space's enclosure confirmed that 89 of those da
were rainy. Through inspection of dated construction photos, Vlah
found that the decking and sheathing inside the mechanical space and
the roof were left largely unprotected and not given sufficient time to d
before encapsulation with other materials.

The layers of building paper and sheet metal on the mechanic
room floor, and insulation and built-up roofing on the exterior, trapp
the water inside the organic materials, creating perfect conditions f
mold growth and deterioration. The intumescent paint used on t
underside of the tongue-and-groove decking further aggravated th
conditions, forming a "sandwich," says Vlahos.

Correcting the problem involved a phased, five-month reco
struction of the damaged areas, performed while the building w
occupied. Resolution did not require litigation—the contractor ackno
edged not protecting the roof and mechanical space adequately duri

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construction and assumed responsibility for the approximately $4 million repair. "The contractor stepped up to the plate," says Vlahos.

Preservation pathologists

A building investigation need not be prompted by a design or construction misstep or a catastrophic failure. The renovation of historic structures, for example, often involves an investigation and evaluation phase. Thornton Tomasetti is performing such an evaluation in its role as building envelope consultant for the owner of the Williamsburgh Savings Bank in Brooklyn, New York. Developer Dermot Company is converting the late 1920s former office and bank building into condominiums.

The 35-story "early skyscraper" is supported by a steel frame but is clad in foot-thick brick—masonry as solid and substantial as though it were load-bearing, but without provision for thermal movement. "There were no expansion joints in this era," explains Thornton Tomasetti's Hammarberg. As a result, the skin has suffered extensive cracking.

In order to document these cracks and find the most appropriate locations for new expansion joints, the envelope consultants needed access to the entire exterior of the 512-foot-tall tower. On this project, as with many similar facade evaluations, Thornton Tomasetti used rope access rather than the more common swing stage or frame scaffolding. Rope access is typically less expensive and provides investigators with more flexibility because there are no platforms, outriggers, or counterweights, explains Kent Diebolt, president of Vertical Access, the building inspection subcontractor. The system, which relies on two static ropes, one for f
protection and one for descent control, also intrudes less on the buildi
fabric, he adds.

In an "almost real time" process, the Vertical Access surveyo
documented their finds using hand-held computers, and sent the files
Thornton Tomasetti each night. The surveyors noted the cracks' locatio
width, and amount of displacement. "Then we identified areas where
wanted probes," says Hammarberg.

The investigation also revealed a unique window-head conditio
What looks like a soldier course of brick is instead a course of custom bri
notched to hide a steel lintel. The shape is extremely vulnerable to therm
expansion and contraction, and many have cracked and broken. The co
sultants have specified cast stone as a replacement, primarily because
specialized brick's long lead time and the tight construction schedu
which requires that facade work be completed by next summer.

Thornton Tomasetti's recommendations include replaci
elements that are broken, while salvaging those that are still serviceab
For the building's terra-cotta decoration, the firm is recommendi
using epoxy to repair broken units wherever possible, and replaci
those beyond repair with the original material. Terra-cotta is lighter th
many substitutes, and its thermal performance is akin to the adjace
materials, explains Hammarberg. He is confident that this "surgica
approach will serve the building well, and that the work will be
"50- to 100-year repair." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Sleuthing the Mundane and the Catastrophic" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 257).**
- **Fill out and submit the AIA/CES education reporting form (page 257) or download the form at www.archrecord.com to receive one AIA learning unit.**

QUESTIONS

1. In the Midtown Manhattan office building, what indicated that fasteners had originally been installed?
  a. wear on brackets and plates
  b. fastener locking devices were found
  c. inspection of spandrel beam clips
  d. location of the missing fasteners

2. The investigation of the Manhattan office building determined that the louvered section of the curtain wall failed because of which?
  a. omitted mullions
  b. wear on brackets and plates
  c. metal fatigue
  d. omitted spandrel clips

3. The team that examined the hidden connections in the Manhattan office building used what device?
  a. convection units
  b. a borescope
  c. magnetic pliers
  d. a fluoroscope

4. The WWCOT team conducted tests and performed analysis to check for which of the following?
  a. water leakage with the HVAC systems on
  b. condensation
  c. water leakage with the HVAC systems off
  d. all of the above

5. WWCOT's calculation of the surface temperatures of each of the materials in the floor assembly ruled out which as the source of the moisture?
  a. deficient flashing
  b. roof penetrations
  c. pressurization
  d. condensation

6. WWCOT determined that the source of the water problem was which?
  a. decking and sheathing were left unprotected during construction
  b. the construction took place during a rainy season
  c. water was trapped inside the wood by other materials
  d. all of the conditions above contributed to the water problem

7. Which indicated to WWCOT that the wood was already wet during construction?
  a. the finding of asphalt on the roof
  b. the finding of intumescent paint on the underside of the decking
  c. a report of difficulty in getting the intumescent paint to adhere
  d. layers of sheet metal on the floor

8. The extensive cracking on the skin of the Williamsburgh Savings Bank building in Brooklyn is due to what?
  a. terra-cotta ornament
  b. thick brick cladding
  c. no provision for thermal movement
  d. expansion joints that are too deep

9. Access to the Brooklyn tower for evaluating the facade was accomplished by which method?
  a. ropes
  b. swing stage
  c. frame scaffolding
  d. outriggers

10. The custom-shaped brick above the windows of the Brooklyn building is being replaced by cast stone for which reason?
  a. custom-shaped brick will take too long to produce
  b. cast stone will be faster to produce
  c. the notched brick is vulnerable to thermal expansion and contraction
  d. all three of the reasons listed above

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Tech Briefs

Airports respond to new security threats with technology and flexible design strategies • Sustainable design and LEED find favor as new airport terminals go green

ew airport security technology is slow to be implemented, but developments abound

e arrest of 24 alleged terrorist nspirators in London on one y in August rippled through the line industry and left passengers rldwide facing uncertain travel ospects. Within minutes of the rests, airline passengers were ing asked by airport security ents to discard liquids, gels, and eams prior to passing through curity. The incident shed further ht on the limits of airport security chnology: Terrorists continue to rsue ways to skirt X-ray and etal-detector devices, as well as e "sniffers" used to identify explo-ves residue on baggage.

Gensler's design of Detroit's new airport terminal emphasizes clarity and openness (above). GE's trace scanner (below) detects for explosives.

According to the Federal viation Administration, in 2005 assengers made approximately 30 million trips through airport curity. Getting people through eckpoints quickly, without com-omising security, is the chief ncern of architects and technol-gy designers involved in redesign terminals throughout the world in sponse to post-9/11 concerns.

Steve Hill, a spokesperson for eneral Electric's security division, involved in a pilot project at San ancisco International Airport (SFO), where GE has installed a security checkpoint of the future to test developing technologies. The checkpoint, which is not used for actual security operations, employs five newer and emergent systems: EntryScan3 trace portals that look like metal detectors, but detect for explosives; computer tomography (CT) scanners for carry-on bags; millimeter wave portals to detect anomalies on a person's body; quadripole resonance used for scanning shoes without requiring their removal; and raman spectroscopy, which can detect explosives in a variety of substances, such as baby formula.

"We're trying to drive down the cost of security by automating it to lower the amount of people required to operate it, as well as get passengers through in around 30 seconds," Hill says. "Ultimately, we'd like to get all of this technology integrated into a seamless environment."

GE's project at SFO is in addition to a pilot air-cargo screening program instituted this summer by the Department of Homeland Security (DHS) at the airport. Chris Kelly, spokesperson for the DHS, says the program will subject non-passenger-related cargo to explosive trace scanning and X-ray machines in an effort to establish a screening methodology based on existing technology for all airports.

The DHS's Transportation Security Laboratory in Atlantic City undertakes research into new technologies, and partners with companies to investigate advanced security systems. DHS then makes suggestions to the Transportation Security Administration (TSA) for final implementation.

While many of the test technologies are ready for implementation, but lack funding, some continue to pose problems. Millimeter wave devices have raised privacy concerns since the images produced of passengers walking through the devices currently leave little to the imagination. Yotam Margalit, with GE Security, said it is their hope to completely automate these systems, so a computer would scan the image and only involve a human operator under an alarm condition. When asked if leaving airport security to a computer is a risk, Margalit says "machines, by and large, have a higher level of detection than operators. We're better off to have the two working in tandem."

TSA has installed nearly 1,400 Explosion Detection Systems (EDS) in commercial airports since 9/11. While the majority of these systems, which are basically CT scanners, have been placed near ticketing desks inside terminals, many airports are beginning to integrate them as "in-line" screeners as part of the overall baggage-handling system, which consumes a great deal of space.

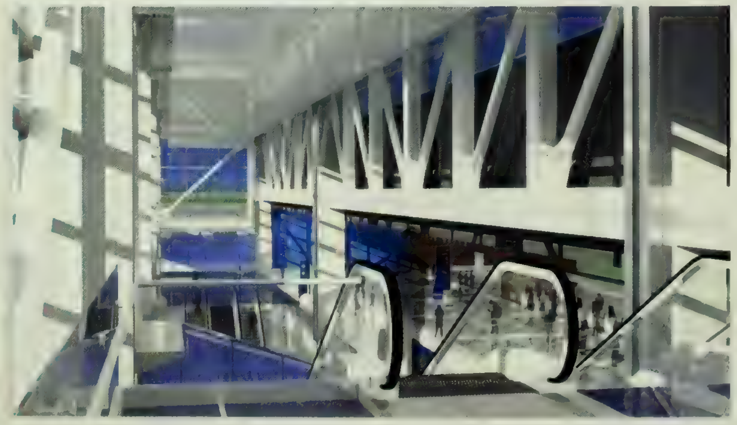
"In a number of cases, we've had to come in and demolish profitable concession space that just happens to be next to the security area needed for processing and queuing," says Ron Steinert, AIA, of Gensler's Santa Monica office. Steinert has been involved in a number of Gensler's airport projects, including new terminals at Little Rock and renovations at LAX. He stresses flexibility in any new terminal design and points to the recent ban on liquids as a surprise that could now probably require an item-disposal station for each checkpoint that will require yet more space. He says one of the biggest challenges facing airports is finding the money to pay for security improvements, especially given the federal government's minimal funding levels, airport authorities that are already stretched tight, and airlines that continue to lose millions.

Russell Fortmeyer

LEED, green initiatives find widespread favor in energy-intensive airport terminals

With airports throughout the world undergoing massive improvement programs to respond to increasing security threats and record levels of passengers, architects are seizing the opportunity to implement sustainable design strategies into a building type that has received little scrutiny for its energy performance in the past.

Kent Turner, AIA, was the project manager for HOK on the new Terminal A at Boston's Logan International Airport, which as of August was the first airport terminal in the world to achieve the U.S. Green Building Council (USGBC)'s LEED certification for new construction. "We had LEED certification as a charter from the beginning, and we all agreed to it," says Turner. HOK incorporated such green strategies as energy-efficient HVAC equipment, construction waste and demolition recycling, and the use of recycled materials. Turner says one of the challenges was integrating daylighting into the terminal, since expanses of glazing next to aircraft requires deluge sprinklers and costs more than a conventional blank wall.



HOK's design for Delta's new Logan International Airport terminal in Boston (top) recently achieved a certified LEED rating. Gensler's design for Detroit's new terminal (above) incorporates a variety of daylighting strategies in an effort to attain a LEED rating after it opens.

Turner said HOK "had to get a lot of interpretations from the USGBC because LEED was originally developed for commercial office buildings, not airports." For example, Turner asks, how do you establish the occupants for a terminal where thousands of people are only passing through for a few hours at a time?

There is discussion within the USGBC to expand LEED as application guides—as opposed to entirely new programs—into a variety of other building types, including airports, but designers are forging ahead without it. Nellie Reid, with Gensler's Santa Monica office and a board member of the USGBC's Los Angeles chapter, has proposed that the USGBC consider introducing LEED for airports as part of her work guiding an expansion of San Jose's new airport terminal toward LEED certification. "One of the difficulties with an airport is we have all of these different packages on their own schedules, like the foundation, structural steel, building enclosure, and building fit-out," Reid says. Still, Gensler has incorporated a number of sustainable strategies toward its goal of LEED Silver: displacement ventilation; glazings that minimize heat gain and loss; occupancy sensors for lighting; and a variety of recycled and sustainably produced finishes and materials. The terminal is scheduled to open in 2008, though there have been some delays.

Airlines have lost billions since 9/11, which has made it difficult in the past to make the case for investing in green design strategies. "Airports have a tendency to emphasize initial cost rather than long-term operational expenses," says Steven Howards, founder and administrative director of the Denver-based Clean Airport Partnership. "Furthermore, design guidelines don't provide any motivation to consider sustainable strategies. It's a major disconnect in the airline industry." Howards points to Seattle-Tacoma International Airport's implementation of sustainable strategies, such as lighting and HVAC control systems, as having saved that airport 25 percent in energy costs per yea with comparatively little investment. "Airports can heighten the awareness of sustainability for what peopl could adopt for their own homes," he stresses. "People have time to kill, especially now with all of the security requirements." He thinks the public would favor it even more if energy saving could be passed onto them with lower ticket prices.

Howards says airports should include sustainable requirements in their design guidelines, as this will even the playing field for architects submitting proposals for new projects. "If the airlines wanted green building as part of the design criteria, it would happen," he says.

What's more, introducing sustainable design to airport terminals has fostered the implementation of cutting-edge technology. HOK and Syska Hennessy Group have designed a radiant cooling system into the floor of a grand public space for the new Indianapolis airport terminal now under construction. Robert Chicas, AIA, with HOK's New York office, says the floor is supplied with chilled water from the airport's central plant, leading to significant energy savings. A similar technique is employed at the new Bangkok International Airport by Murphy/Jahn Architects and Transsolar. Carl D'Silva, with Murphy/Jahn, says the radiant cooling slab will not only relieve the airport's more conventional mechanical system, it will also absorb solar load from the terminal's massive skylights and overhead trellis system. The airport officially opened in September. *R.F.*

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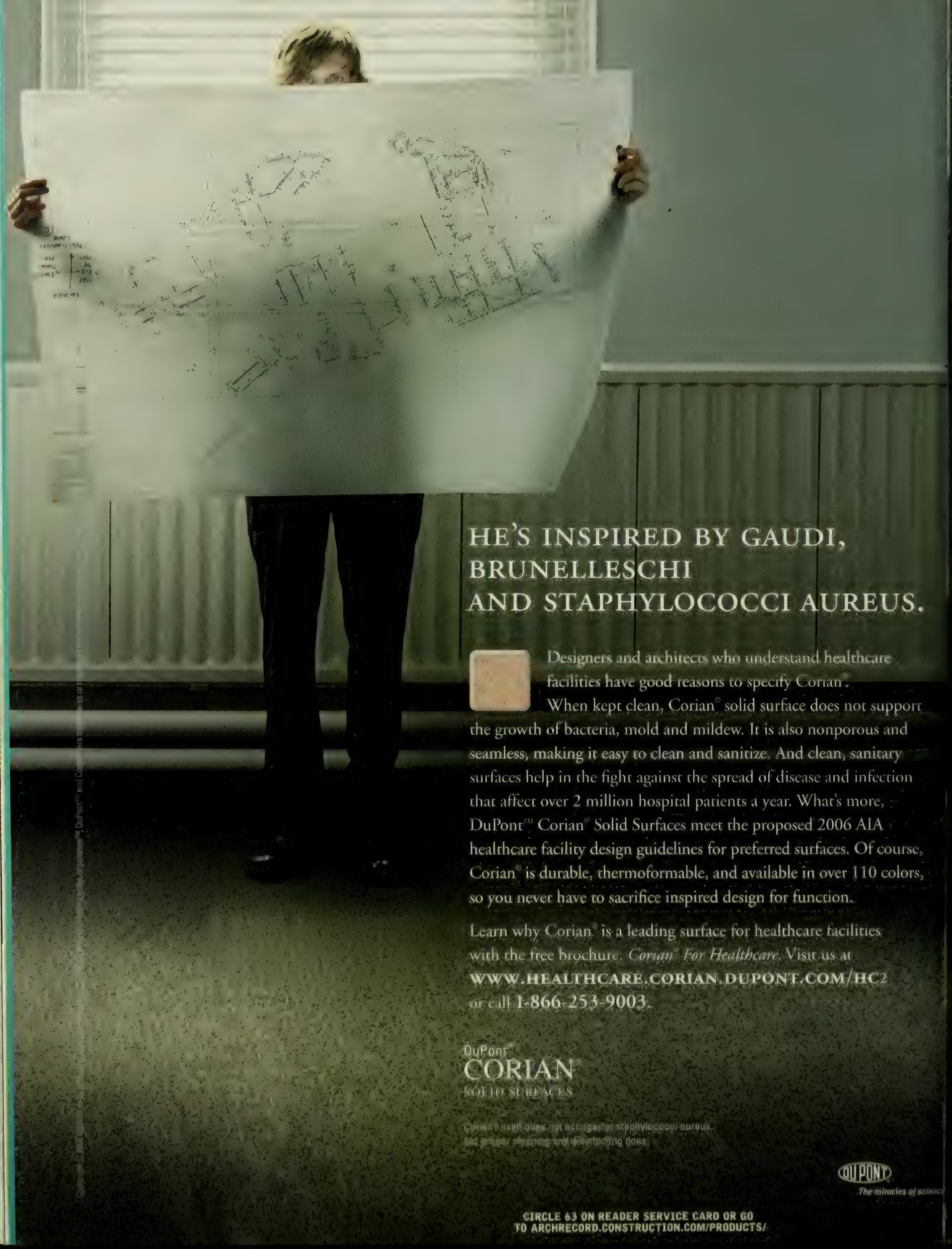

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171-175 Designing for Fire Resistance with Gypsum Panel Systems

Provided by Robert C. Grupe, CSI
Director Architectural and Technical Solutions
USG Corporation

Nestor G. Sanchez
Architectural Systems Manager
USG Corporation

LEARNING OBJECTIVES:

- *Evaluate the elements in a fire-rated building assembly using gypsum panels*
- *Identify performance characteristics of different types of fire-resistant gypsum panel system*
- *Explain the testing procedures and standards used to determine fire-ratings of gypsum panel systems*
- *Design and specify fire-resistant gypsum panel systems for various applications*

177-181 Wood Fire-Rated Doors Combine Safety and Aesthetics *Advances*

Provided by Artistic Doors and Windows

LEARNING OBJECTIVES:

- *Discuss the recent trends in fire-rated doors*
- *Recognize the types of fire-testing that meet codes*
- *Analyze the requirements for fire-rated door glass and hardware*
- *Identify national codes and standards pertaining to fire-rated doors*

183-191 Collaborating with Contractors for Innovative Architecture

Provided by C.C. Sullivan
Communications Consultant and Author

LEARNING OBJECTIVES:

- *Explain the primary benefits of architecture firms collaborating with construction firms throughout the project life cycle*
- *Evaluate the pros and cons of collaborating with contractors, including insurance and legal issues*
- *Identify and describe at least four types of collaborative project delivery*
- *Describe anecdotal examples of how collaborative project delivery led to design innovations and/or client satisfaction*

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proving building safety through the use of fire ted assemblies

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rom high-rise commercial towers and institutional facilities to residences and virtually all types of occupied buildings, rapid and safe evacuation of building occupants during a fire or other emergency is of critical importance to life, safety and survival. As the nts of September 11, 2001 at the World Trade Center illustrated, the location, terials and fire ratings of exit stairways, vestibule enclosures and corridors leading to m play an important role in ensuring that people can safely exit burning buildings.

lding codes address the need for fire-rated corridors, and fire resistance of materials ertain areas and public spaces within buildings, so that building occupants can reach ts and other means of egress. The codes typically dictate the level of fire resistance a lding assembly, or group of components, must meet, and where each assembly shall located to create the appropriate compartmentalization.

st municipalities adopt a model code as the basis for their own code, making difications that best meet their needs. Although many municipalities are tching to the newer International Building Code (IBC), which replaced the Uniform lding Code (UBC), Building Officials Code Administrators (BOCA) Building Code and ndard Building Code, some municipalities still follow one of the three older model codes.

se model codes establish the required fire istance rating of an assembly based on the ended use of the building and its size. For mple, hospitals and high-rise office buildings are sidered high-risk structures.

Model codes are established based on the intended use.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Designing For Fire Resistance With Gypsum Panel Systems.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 175, then follow the reporting instructions on page 175 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Evaluate the elements in a fire-rated building assembly using gypsum panels*
- *Identify performance characteristics of different types of fire-resistant gypsum panel systems*
- *Explain the testing procedures and standards used to determine fire ratings of gypsum panel systems*
- *Design and specify fire-resistant gypsum panel systems for various applications*

The rapid and safe evacuation of building occupants during a fire is paramount to life, safety and survival. Model codes establish the required fire resistance rating of an assembly based on the building's intended use and size.

Buildings requiring the highest level of fire protection are classified as Type I or Class A. This means that the building must be constructed with non-combustible materials, and all finishing materials must have a limited index for the spread of fire on their surface and the amount of smoke they would emit in case of a fire. In addition, there must be a protected means of egress for building occupants. The means of egress requires that the walls surrounding the area must provide a specific level of fire resistance.

Single-family residences, where evacuation and rescue are generally considered easier to achieve, can be constructed with combustible materials. Multifamily residences typically have fire resistance requirements.

Testing for Fire Resistance

The fire resistance of assemblies is established in accordance with ASTM Standard E119, which is published by ASTM International. Formerly known as the American Society for Testing and Materials, ASTM International is a widely recognized standards development organization.

ASTM Standard E119 provides the ratings for walls and partitions, floor-ceiling and roof-ceiling assemblies, beams and columns. From this nearly century-old test standard, other test standards have been developed to evaluate the level of performance of through-penetration fire stop, joint and curtain-wall systems as they relate to the desired compartmentalization of buildings. The level of fire resistance is measured in hourly ratings: one, two, three, four and eight hours.

ASTM Standard E136 is employed to determine whether or not a given material is considered combustible. This standard measures a characteristic of the material itself, while the former standards evaluated the performance of the assemblies. The surface flammability and the amount of smoke produced by a given material are evaluated in accordance with ASTM Standard E84.

In establishing the fire resistance of an assembly, three factors are taken into consideration: the ability of the assembly to prevent the passage of flame, the capacity of the assembly to limit the heat transfer from the exposed side to the unexposed side and the assembly's ability to maintain its structural integrity for the classification period. Another consideration is the temperature of the structural steel, which may be used to establish restrained and unrestrained ratings.

Walls are required to be subjected to a hose stream test after a portion of the fire resistance test. The purpose of the hose stream test is to measure the relative integrity of the wall after it has been exposed to a fire. Water from the stream is not permitted to project through the wall assembly.

The walls that are to be tested are built within a steel and concrete yoke or frame. ASTM Standard E119 specifies that the area of the test specimen must be a minimum of 100 square feet, with no dimension measuring less than 9 feet. Typically, the test frames are 10 feet by 10 feet. Once the assembly is built within the frame, the frame is clamped in front of the furnace so that one side of the assembly is exposed to the fire.

The temperature within the furnace throughout the test is regulated in accordance with the standard time-temperature curve prescribed in the ASTM Standard.

Standard Time-Temperature Curve

Temperature in Degrees Fahrenheit	Time
1,000	5 Minutes
1,300	10 Minutes
1,550	30 Minutes
1,700	1 Hour
1,850	2 Hours
2,000	4 Hours
2,300	8 Hours and Over

The temperature on the unexposed side is monitored at a minimum of nine locations using thermocouples, which are temperature sensors that can measure a wide range of temperatures. Five of these locations are defined specifically by the standard. One of the thermocouples must be located exactly in the center of the assembly, while the other four must be positioned in the center of the wall quadrants. The location of the remaining four thermocouples is left to the discretion of the lab conducting the fire test.

The average temperature rise on the unexposed surface is not permitted to exceed 250 degrees F, while no single thermocouple is allowed to exceed a temperature rise of 325 degrees F. Load-bearing walls are tested with a superimposed axial load simulating the maximum load condition. The wall must be able to sustain the superimposed load during the fire endurance and hose stream tests. The relative integrity of the wall after a portion of the fire endurance test is determined by the hose stream test.

A second wall is tested to half, but not more than one hour, of the intended fire resistance rating. The fire is shut off, and the partition removed and immediately hit with a specified pressurized stream of water from a distance of 20 feet for a specified period of time that depends on the fire resistance rating. The test requires that this hose stream must be emitted from a 2-1/2-inch hose with a National Standard playpipe nozzle with a 1-1/8-inch tip. If the water does not project beyond the plane of the wall, then the wall passes the hose stream test.

Hose Stream Test

Resistance Period – Hours	Water Pressure – PSI	Duration of Application Minutes
Less than 1 (Optional)	30	1
1	30	1
2 and 3	30	2-1/2
4	45	5

The standards also permit the hose stream test to be conducted at the end of the fire endurance test. It is important to understand that the hose stream test is not intended to simulate what happens when the wall is actually hit with a stream of water from firefighter hose. Instead, it is only intended to develop data about the relative integrit the wall after a portion of, or during the entire fire endurance test, so that the de professional can make an accurate assessment of the building's safety.

Fire-Resistive Assemblies

A fire-resistant wall is composed of specially formulated fire-resistant gypsum panels, some type of framing (wood or metal studs), fasteners and a joint finishing system (if it is needed). Fire-resistant gypsum panels are classified as "Type X" in accordance with ASTM Standard C1396.

A fire-resistant wall is composed of specially formulated gypsum panels framing fasteners and a joi finishing system.

A 5/8-inch gypsum panel is classified as Type X in accordance with ASTM Standard C1 when it achieves a one-hour rating in accordance with ASTM Standard E119 as app to both sides of 2-inch by 4-inch wood studs spaced 16 inches o.c. (on center), with long dimension oriented parallel to the studs and attached to the studs with 1-7/8-in long, cement-coated nails spaced 7 inches o.c., with the joints treated with paper t and joint compound.

Non-combustible walls have achieved one-, two-, three- and four-hour ratings emplo steel studs and single or multiple layers of gypsum panels. The most basic one-hour is listed in Underwriters Laboratories' (UL) Fire Resistance Directory as Design No. U46 is composed of a single layer of 5/8-inch Type X gypsum panels on both sides of 25 ga (18 mil) metal studs spaced a maximum of 24 inches o.c.

Most of the gypsum panels covered in this design must be applied vertically and be atta to the studs with 1-inch-long Type S screws spaced 8 inches apart in the perimeter an inches apart in the field of the panels. The use of thermal insulation for sound purpose optional in this design.

A standard two-hour system is listed in the directory as Design No. U411. This de specifies a double layer of 5/8-inch Type X gypsum panels on both sides of 25 gauge mil) metal studs spaced a maximum of 24 inches o.c. It is interesting to note that finis of the joints is not required in this specific assembly. Once again, insulation is optional alternative to this is UL Design U412, in which the same two-hour rating can be achieved with layers of 1/2-inch Type C gypsum panels on both sid the studs in place of the 5/8-inch Type X gypsum pan

By adding layers of gypsum panels, the fire resistance of virtually any wall can be increased by one hour.

By adding layers of gypsum panels to each side of studs, the fire resistance of virtually any wall ca increased by one hour. Design No. U435 covers three- four-hour ratings with three and four layers, respecti of 1/2-inch Type C or 5/8-inch Type X gypsum panels

e Resistance of Gypsum Panels

n it comes to fire-resistive ratings, the construction industry offers three different types ypsum panels. Although all gypsum panel manufacturers make different types of els for a multitude of applications, they all fall into three basic categories: Regular Core, X and Type C gypsum panels. The primary difference is in each panel's core composition. ular core, as the name implies, is a standard or basic core that is non-fire-rated and erally used in a wide range of residential construction applications.

iewing the basic chemistry of the product provides a better understanding of the fire stance of gypsum panels. Gypsum is a naturally occurring mineral and can be found in great abundance around the world. In fact, White Sands, New Mexico, gets its name from the huge gypsum deposit that is located there. Gypsum is a very soft mineral composed of calcium sulfate dehydrate with the chemical composition reflected as $CaSO_4\text{-}2H_2O$. When gypsum is subjected to heat, 1-1/2 molecules of water are emitted as steam, giving gypsum outstanding fire-resistant properties.

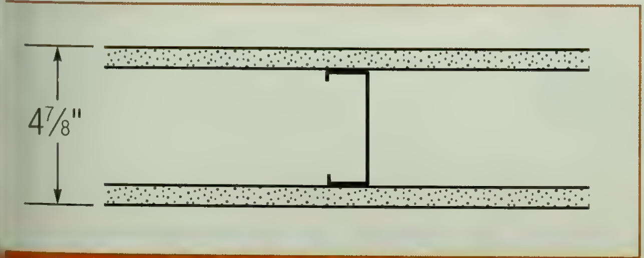
ypsum is a naturally ccurring mineral and an be found in great abundance around the world.

ne early 1950s, comprehensive testing was conducted on gypsum board to confirm that it ld achieve the required fire ratings. The testing found that glass fiber strands, when oduced to the core, act as reinforcing bars and increase the product's structural capacity so the panel can be used in fire-rated construction. Generally, these are known as Type X sum panels.

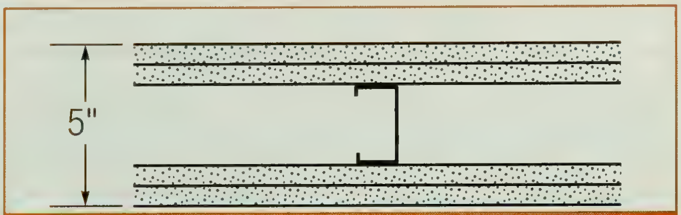
se strands can be exposed by abrading the sum core, and they will appear as hairs in the gypsum core. To further enhance the performance of the panel, unexpanded niculite is added to the core. When it is osed to fire, the vermiculite will expand and the voids created by the departing water. niculite is a natural, non-toxic material that ands with the application of heat, and is frequently used for fireproofing, especially structural steel and pipes.

To further enhance the fire performance of the panel, unexpanded vermiculite is added to the core.

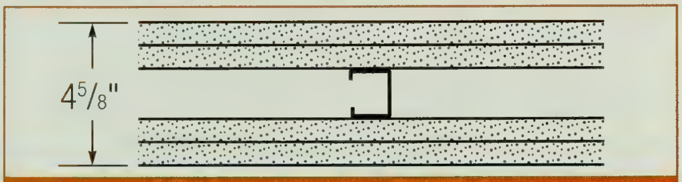
rove the point, some simple comparative tests were conducted. This included taking nch by 12-inch by 5/8-inch-thick samples of Regular, Type X and Type C gypsum els and installing them in angled horizontal position. A superimposed load of 12 nds, 9 ounces was applied over each panel. A temperature of 1,800 degrees F was ntained under each one of the samples for the duration of the test. The Regular panel d only 12 minutes into the test. The Type X gypsum panel failed at 58 minutes, while Type C panel did not fail during the test (which lasted two hours and two minutes). n close examination of the Type C panels, the paper on both the exposed and unexposed s had disappeared.



UL Design No. U465
Sheetrock® Brand Firecode® Core Gypsum Panels or Imperial® Brand



UL Design No. U411
5/8" Sheetrock Brand Firecode Core Gypsum Panels, or Fiberock Brand Panels



UL Design No. U435
3/4" Sheetrock Brand Ultracode Core Gypsum Panels

Details Are Important

Details are extremely critical in maintaining the integrity of the system. As noted in the previously cited comparison of gypsum panel types, it is imperative to use the right core formulation for a given application. Type C gypsum panels generally can be used in place of Type X panels, but the opposite is not always true.

If the system calls for a single layer of gypsum panels and the assembly is a floor-ceiling (or roof-ceiling) assembly, it must be a Type C gypsum panel. A Type X gypsum panel likely will not provide the same level of protection. Consequently, it is imperative to specify and install the panel that was used in the test and specified in the individual UL design. UL is an industry-recognized testing laboratory that develops standards and test procedures for materials, components, assemblies and procedures.

Other important criteria include the panel placement and orientation. While it is generally good design practice to stagger the panel joints, it is absolutely imperative to do so in some cases. The intent is not to have a panel joint occur on both sides of the same stud. In addition, if the wall is multilayered, each layer of gypsum should be offset from the layer underneath.

Orientation is the direction in which the gypsum panel is installed relative to the framing. Historically, the panels had to be installed with the long dimension running parallel to the framing (sometimes called installed vertically), as the only data that existed had been developed with this specific panel orientation.

It was not until 1996 that the first successful fire and hose stream tests were conducted on steel stud walls, with the gypsum panels applied perpendicular to the studs (sometimes called installed horizontally), without any backing behind the resulting horizontal joints and without staggering the horizontal joints on opposite sides of the studs.

The primary reason for testing the horizontal application of the gypsum panels was to validate the option of installing the panels horizontally at the top of walls commonly found on commercial construction. Installing them in this manner permits earlier installation of the electrical, plumbing and air conditioning lines, as it is extremely difficult to build fire-rated walls around pre-existing mechanical lines.

The remaining section of the wall is typically finished with the gypsum panels applied parallel to the studs for easier finishing of the joints. The resulting horizontal joint toward the top of the wall (between the horizontally and vertically applied gypsum panels) is typically hidden behind an acoustical ceiling. The pre-installation of horizontally applied panels at the top of the wall is typically referred to as "top down" construction.

The successful test results with the unsupported horizontal joints also eliminated the need to back with framing any horizontal butt joints of vertically applied panels when the specific gypsum panels are used. Furthermore, since the horizontal joints on opposite sides of the studs were not staggered in the fire and hose stream tests, it could be implied that this procedure can be used to build fire-rated walls around previously installed penetrations by splicing the gypsum panels at the height of the penetrants. The resulting horizontal joints on the panels would not need to be staggered. This has been deemed an enormous benefit in retrofit and applications. Again, the specific tested panels must be used in the construction of the walls. The specific orientation of the gypsum panels is noted in the individual UL designs, with the name of the manufacturers and type designation of the panels, as in Design Nos. U419, U420, U423 and U465.

In the ***Fire Resistance Directory,*** published by Underwriters Laboratory, (www.ul.com) the Introduction Section, VI. Wall and Partition Assemblies, states the following: "Orientation, vertical or horizontal, of the application of gypsum board in walls and partitions is specified in the individual designs.

Except when gypsum board is allowed to be applied horizontally in the individual wall designs, horizontal butt joints of vertically applied gypsum board should be backed by the same type studs as specified in the design. Alternatively, minimum 25 gauge steel framing with a minimum attachment face of 1-1/4" may be used for the backing. Both edges of the gypsum board forming the horizontal joint shall be attached to the backing with the same screws and spacing as specified in the design for the attachment of the gypsum board edges, then finished as specified for the vertical joints.

Horizontal butt joints on opposite sides of the studs in single-layer applications shoul staggered a minimum of 12 inches unless otherwise stated in the individual designs. Horizo butt joints in adjacent layers on the same face of the assembly in multiple-layer applicat should be staggered a minimum of 12 inches unless otherwise stated in the individual desig

Earlier, several different UL designs were cited as references for the one- through four- partitions. Testing has greatly simplified the design and specification of fire-rated w As of fall 2006, several designs cover walls with ratings of one to four hours, such as De Nos. U419 (conventional walls) and U415 (shaft walls).

Another important consideration for designing and maintaining the intended fire rating make sure the right fastener and fastener spacing are used.

Steel Stud Drywall Partition Screw Spacing and Location

It should be noted that Underwriters Laboratories provides technical assistance in interpretation of conditions that are not specifically tested. This assistance is based on enormous amount of data available to UL on a variety of materials and systems. Mar these situations may have already been reviewed by UL or may have been tested by UL u the so-called "Special Services Investigations."

Examples of these would be the evaluation of corner details that do not specifically fall u the scope of ASTM Standard E119 or the installation of recessed electrical panels in fire-r walls. Architects and contractors should consult with the manufacturer of the gypsum pa being used in the specific project for assistance regarding special situations. ■

Hourly	Test	Face Layer Screw			Base Layer Screw			
Rating	Number	Length	Type	Spacing and Location	Length	Type	Position	Spacing and Location
1 hour	U419	1"	S	8" o.c. on panel edges; 12" o.c. in field of panel				
	U420	1"	S	8" o.c. on panel edges; 12" o.c. in field of panel				
	U448	1"	S	8" o.c. on panel edges; 12" o.c. in field of panel				
	U451	1"	S	12" o.c.				
2 hour	U411	1-5/8"	S	16" on edges and field; 12" along runner	1"	S		16" o.c. on edges of panel; 16" o.c. field of p
	U412	1-5/8"	S	12" o.c.	1"	S		24" o.c. on edges of panel; 24" o.c. field of p
	U419	1-5/8"	S	16" o.c. on edges and field	1"	S		16" o.c. on edges and in field of panel
	U420	1-5/8"	S	8" o.c. on panel edges; 12" in field of panel	1"	S		8" o.c. on panel edges; 12" o.c. in field of pa
	U453	1-5/8"	S	Channel side: 12" o.c.	1"	S		Channel side: 24" o.c.
		1"	S-12	Direct side: 12" o.c.				
	U454	1-5/8"	S	Channel side: 12" o.c.	1"	S		Channel side: 24" o.c.
		1-5/8"	S-12	Direct side: 12" o.c.	1"	S-12		Direct side: 24" o.c.
	U491	1-1/4"	S	8" o.c. on panel edges; 12" o.c. in field of panel				
3 hour	U419	2-1/4"	S	12" o.c. on edge and field	1"	S	1st layer	24" o.c.
		1-1/2"	G	Between studs at horizontal joint	1-5/8"	S	2nd layer	24" o.c.
	U435	2-1/4"	S	12" o.c.; 2" from top and bottom of stud	1"	S	1st layer	48" o.c.; 4" from top and bottom of stud
		1-1/2"	G	Between studs at horizontal joint	1-5/8"	S	2nd layer	48" o.c.; 3" from top and bottom of stud
	U455	1-5/8"	S	Channel side: 12" o.c.	1"	S		Channel side: 24" o.c.
		2-1/4"	S-12	Direct side: 12" o.c.	1"	S-12	1st layer	Direct side: 24" o.c.
					1-5/8"	S-12	2nd layer	Direct side: 24" o.c.
4 hour	U419	2-5/8"	S	12" o.c. to studs	1"	S	1st layer	24" o.c.
		1-1/2"	G	Between studs at horizontal joints	1-5/8"	S	2nd layer	24" o.c.
					2-1/4"	S	3rd layer	24" o.c.
	U435	2-5/8"	S	12" o.c.; 2" from top and bottom of stud	1"	S	1st layer	48" o.c.; 5" from top and bottom of stud
		1-1/2"	G	Between studs at horizontal joints	1-5/8"	S	2nd layer	48" o.c.; 3" from top and bottom of stud
					2-1/4"		3rd layer	48" o.c.; 3" from top and bottom of stud
	U490	2-1/4"	S	12" o.c. to studs	1-1/4"	S		24" o.c.
		1-1/2"	G	Between studs at horizontal joints				

CLICK FOR ADDITIONAL SUPPLEMENTAL READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0610usgypsum-1.asp***

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

RNING OBJECTIVES

r reading this article, you should be able to:

valuate the elements in a fire-rated building assembly using gypsum panels

lentify performance characteristics of different types of fire-resistant vpsum panel systems

xplain the testing procedures and standards used to determine fire ratings f gypsum panel systems

esign and specify fire-resistant gypsum panel systems for various oplications

TRUCTIONS

r to the learning objectives above. Complete the questions below. o the self report form on page 171. Follow the reporting instructions, ver the test questions, and submit the form. Or use Continuing Education self report form on *Record's* web site—*record.construction.com*—to receive one AIA/CES Learning Unit ıding one hour of health safety welfare credit.

STIONS

When establishing the fire resistance of an assembly, which of the following factors is not considered?
- **a.** Capacity of the assembly to limit heat transfer from the exposed side to the unexposed side
- **b.** Ability of the of the assembly to prevent the passage of flame
- **c.** Amount of smoke generated by the assembly in one hour
- **d.** Ability of the assembly to maintain structural integrity

The level of fire resistance is measured in which of the following?
- **a.** One, two, three, five and 10 hour ratings
- **b.** 60, 90, 240 and 300 minute ratings
- **c.** 250 and 350 degrees Fahrenheit ratings
- **d.** One, two, three, four and eight hour ratings

The basic categories of fire-resistant-rated gypsum board panel systems available within the construction industry are known as:
- **a.** Type A, Type B, Type C, Fireproof Core
- **b.** Type C, Type X, Regular Core
- **c.** Type X, Type XX, Type Y, Smokeproof Core
- **d.** Regular Core, Irregular Core, Vermiculite Core

4. The primary difference among the fire-resistant qualities of gypsum board panel types is which of the following:
- **a.** Thickness of gypsum panels
- **b.** Gauge of steel studs
- **c.** Core composition
- **d.** Rate of flame spread to wall thickness

5. Which is true about gypsum panel placement and orientation?
- **a.** Some panel types are only available in certain sizes and orientations
- **b.** Good practice is not to have a panel joint occur on both sides of the same stud
- **c.** Staggering panel joints only applies to limited situations
- **d.** In multilayered walls, panel joints should align within 1/2 inch

6. What is gypsum?
- **a.** A man-made mineral fiber (MMMF) known for its fireproofing properties
- **b.** A soft mineral found in large quantities around the world
- **c.** A natural mineral found primarily in the southwestern United States
- **d.** A synthetic substance manufactured without oil-based chemicals

7. Which of the following will enhance the fire-resistant qualities of certain types of gypsum panels?
- **a.** High-gauge steel studs, spaced closely together
- **b.** Unexpanded vermiculite added to the core
- **c.** Spray-on fireproofing applied to the unexposed sides
- **d.** Waterproof membranes applied to the inside face of the panels

8. True or false? A fire-resistant wall is composed of specially formulated fire-resistant gypsum panels, some type of framing (wood or metal studs), fasteners and a joint finishing system (if it is needed).
- **a.** True
- **b.** False

9. The fire resistance of almost any wall can be increased through which of the following?
- **a.** Applying spray-on vermiculite
- **b.** Using vertical orientation of gypsum panels
- **c.** Not staggering horizontal joints on panels
- **d.** Adding layers of gypsum panels to each side of the studs

10. Which of the following are important considerations for designing and maintaining the intended fire rating?
- **a.** Fasteners and fastener spacing
- **b.** Amount of vermiculite used in the core
- **c.** Amount of smoke emitted during laboratory testing
- **d.** Weight and orientation of the wall panel system

USG

USG Corporation is a Fortune 500 company with subsidiaries that are market leaders in their key product groups: gypsum wallboard, joint compound and related gypsum products; cement board; gypsum fiber panels; ceiling panels and grid; and building products distribution.

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here is no doubt that a fire can be a devastating experience, resulting in loss of life and property. According to the Federal Emergency Management Agency, each year more than 4,000 Americans die in fires, and more than 25,000 are injured; property loss sed by fires exceeds $8.6 billion annually. The U.S. Fire Administration, which calls rica's fire death rate one of the highest per capita in the industrialized world, presents e startling facts. In less than 30 seconds a small flame can burst into a major fire. Heat the fire is a bigger threat than its flames: In a fire situation, room temperatures can to 100 ° F at floor level, and soar to as much as 600 ° F at eye level. Inhaling the super-ted air will scorch the lungs. In addition, fire uses up oxygen and produces smoke and onous gases that cause drowsiness, disorientation and even death.

unately, architects have several tools in their arsenal to retard fires, saving lives and erty in the process. Fire-rated doors are one such element. Used in both commercial residential applications, fire-rated doors can be made of steel, wood, or a combination aterials, which together form a door system. In addition to the door leaf itself, there is doorframe, hardware, including manual or automatic closing devices, locks, and hes, and sometimes internal windows, all of which are subject to product certification must meet requirements of the local building code.

nological advances have enabled fire doors to take on a sleeker, more refined look tting up-scale residential and commercial projects that require a high degree of itectural detailing. With the variety and sophistication of fire-rated doors on the ket, architects can add a safe, aesthetically pleasing element to their visual palette.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Wood Fire-Rated Doors Combine Safety and Aesthetics.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 181 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Discuss the recent trends in fire-rated doors*
- *Recognize the types of fire-testing that meet codes*
- *Analyze the requirements for fire-rated door glass and hardware*
- *Identify national codes and standards pertaining to fire rated doors*

Photo courtesy of Artistic Doors & Windows

New Trends in Fire-Rated Doors

Thanks to new technology in compressing the fire retardant component of the door, fire-rated doors can be made of wood and offer an attractive solution to creating barriers against fire, passing recognized tests such as those by the National Fire Protection Association (NFPA) 252, "Standard Methods of Fire Tests of Door Assemblies," and top independent fire-rating agencies. Manufacturers are increasingly offering a plethora of fire-rated wood doors in an array of hardwoods and finishes; many of the doors can also be specified with glass features in differing textures and surfaces.

"Over the past ten years there has definitely been an increase in the selection of attractive fire-rated wood doors, both commercially available and custom-made," says Helge Fuhrmann, Associate, Dipl.-Ing. Architect, SBA, Frederic Schwartz Architects in New York. "I am nearing completion on a project where I specified four doors leading from the public corridor into a high-end floor-through apartment in a high rise building in midtown Manhattan. For code reasons we have to have these doors fire rated. That required custom-made walnut fire-rated wood doors to match the non-rated doors on the project. Since we are also building out the corridor it was important that these doors match other doors in the apartment and the overall design."

"The average person would be hard pressed to tell a fire door from a non-fire-rated door," says Rick Autovino, President of New Jersey-based Artistic Doors and Windows, Inc. "Fire-rated doors can be very elegant, and give architects an unprecedented choice. There are literally hundreds of styles on the market—flat panel, raised panel, exotic woods, paint grade, even full French doors. Architects are enjoying expanded flexibility in meeting their design objectives."

Photo courtesy of Artistic Doors & Windows

From Code to Luxury Applications

The necessity of specifying a fire door is largely driven by code, which can vary widely by jurisdiction. Fire doors are critical because when there is an access portal, like a doorway, to an enclosed compartment, the fire barrier is temporarily broken. To maximize resistance to the spread of fire, smoke, and toxic gasses, fire doors must be self-closing and have proper latching devices.

Generally speaking, the following doors must be fire doors, and are typically used in commercial applications: doors that are marked with an exit sign; doors that lead to marked exits, such as stairwells; doors that lead to hazardous areas; and doors that lead to hallways or from one fully enclosed room to another.

In the late 1960s, some residential building codes began to require fire-rated doors leading from the garage, and often from the basement, into the house. Since the garage houses gas-filled vehicles and the garage and basement may contain storage of flammable materials, fire doors are a way to isolate the fire and keep it from spreading into the house.

More architects are going beyond code and specifying fire-rated doors.

Although it's a cost-plus situation, more architects are going beyond code and specifying fire-rated doors in several situations, particularly in high-end residential and commercial projects. Within the industry, as technology has enabled the door's fire retardant component to become "miniaturized" –some are as thin as 1/16 of an inch—doors themselves have taken on a sleeker look. Stile and rail doors are typically available in 1 3/4 inch thickness—down from more than 2 1/4 inches before. Doors are available in 1/2 inch flat panel—single doors, double doors, full panel and full glass.

"Architects are increasingly specifying fire doors in non-code situations," says Autovino, noting that fire-rated doors for bedrooms are becoming increasingly common. In a departure from the open look that has been popular in recent years, homeowners are increasingly opting to enclose the kitchen—an aesthetic as well as a safety preference. "Homeowners are very concerned about the possibility of a fire spreading," adds Autovino.

Doors and Door Assemblies

In addition to the door itself, the doorframe, the door hardware, and the structure that lds the assembly in place must all conform to product certification and standards tha are prescribed by the local building code. In addition to codes, the standard known as NF 80 Standard for Fire Doors and Fire Windows, is a user-friendly reference for fire doors and their associated components. "The codes tell you where a fire-rated door is necessary and NFPA 80 tells you how to do it, piece by piece," says Robert Solomon, Assistant President for Building and Life Safety Codes at the National Fire Protection Associatio

Fire Rated Doors: Basic Functions

To understand how critical fire rated doors are in containing a fire, it is importa to understand the basic characteristics of fire. Fire spreads quickly—in just two minutes can become life-threatening. In five minutes, a house can be swallowed up by flame- scenario that demands a dependable protective system already be in place.

As opposed to active fire protection, such as sprinklers or smoke detectors, fire door classified as passive fire protection measures. The objective of passive measures contain a fire and curtail its spread, as well as limit excessive heat and reignitable ga a certain period of time—capabilities that are determined by testing, and which mu be contained in a configuration that is consistent with the local building code or fire cod

Rating Fire Doors

Not all fire doors are created equal. Fire doors are rated by time that a door can withs exposure to fire conditions. Ratings are given for a door's ability to withstand fire for 1 2-hours, 1-hour, 3/4-hour, and 1/3-hour, with the maximum rating required of any swing fire door being three hours. Generally speaking, 1/3-hour or 20-minute doors are use for corridors and where smoke and draft control is the main objective. One-hour rated doo found in between rooms, and 45-minute doors in corridor walls and room partitions. with 1 1/2 hour, or 90-minute ratings, are typically used in stairwells; 3-hour rated are typically found in walls that separate buildings or that divide a large building to smaller fire areas.

Up until recently, fire doors have been tested under neutral-or-negative-pres conditions. But by the year 2000, virtually all of the jurisdictions enforcing the Uni Building Code (UBC) opted to update to the first model code in the U. to require positive-pressure testing of fire doors. Used widely in Europe Asia, positive pressure testing is intended to more accurately address al-world fire conditions. As air heats up through fire, it expands, ca pressure to build up within an enclosure and increasing the potential im of fire on a door, and possibly causing flames to enter through crac other openings.

The door assembly is placed in a furnace with temperatures up to 1800 ° F for the spe length of time. The door must remain latched and in position, with no cracks or ope developing or flame penetrating to the other, non-fire side of the door. After the doo been exposed to the fire for half its intended rating, the door is subjected to a hose st test, in which it is doused with water from a fire hose. The thermal changes resulting cold water thrown on a hot surface, combined with the force of the hose stream itself, cause a door to come unmoored from its frame, not meeting the requirements of the

The duration of the hose stream test is dependent on the desired rating of the door. Wit positive-pressure testing followed by hose-stream tests, the U.S. has the most stri standards in the world. In the U.S., fire doors that are rated for 20 minutes are exempt hose-stream tests.

*Fire spreads
ickly—in just two
minutes a fire
can become
life-threatening.*

In certain situations, such as staircase enclosures in a high rise apartment or commercial building, fire doors are called on to resist the transmission of heat so as to give building occupants a safe path of egress to the floors below where the fire is raging. This type of door is known as a temperature rise door, and has a specially designed core to meet these requirements. The fire door label of a temperature rise door will state, not only the door's fire ection rating, but its temperature rise rating above ambient. Typically, these ratings are ed as 250°F 450°F, and 650°F, corresponding to the greatest rise in temperature over and e the temperature measured on the non-fire side of the door during the first half hour e standard fire test. The highest rating here is the 250°F as that is the least rise above mbient temperature.

levant Codes and Standards

e fire rated, all products must have undergone testing at one of the following main fying laboratories:

erwriters Laboratory (UL) Certification

s the largest and oldest nationally recognized testing laboratory in the United States. ufacturers submit products to UL for testing and safety certification on a voluntary s. While there are no laws specifying that a UL Mark must be used, in the U.S. many icipalities have laws, codes or regulations which require a product to be tested by a nally recognized testing laboratory before it can be sold in their area.

nock Hersey Certification

nock Hersey is an independent testing laboratory. Building and construction materials ing the WH Mark indicate product compliance to relevant building codes, association ria, and product safety and performance standards.

dition, to be fire rated, products may be subject to other codes and requirements. Some ese include:

rican Society for Testing and Materials (ASTM) E2074—Standard test method fire test of door assemblies

nized in 1898, ASTM International is one of the world's largest voluntary standards loping organizations. ASTM members, representing producers, users, consumers, rnment, and academics from over 100 countries, develop technical documents that are asis for manufacturing, management, procurement, codes, and regulations. There more than 12,000 ASTM standards that can be found in the 77-volume Annual Book of M Standards.

to courtesy of Artistic Doors & Windows

Uniform Building Code (UBC) 7-2—Fire test of door assemblies

The Uniform Building Code is a set of regulations covering all major aspects of building design and construction relating to fire, life safety, and structural safety and reflects the latest technological advances available in the building and fire-and life-safety industries. Revised editions are published approximately every three years.

**National Fire Protection Association (NFPA)
80—Standard for fire doors and fire windows**

The NFPA's mission is to reduce the burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards, research, training, and education. Established in 1896, NFPA is a leading advocate of fire prevention and an authoritative source on public safety, with some 300 codes and standards that influence every building, process, service, design, and installation in the United States, and many in other countries.

NFPA 252—Standard methods of fire test of door assemblies

**International Building Code (IBC)
7-13—Fire resistive assemblies for protection of openings**

The IBC is a model building code of the International Code Council (ICC). One or more parts of the code have been adopted in many jurisdictions throughout the U.S. In large measure, the IBC deals with fire prevention in relation to design and construction. The ICC was established in 1994 and founded by the nation's three model code groups, Building Officials and Code Administrators International, Inc. (BOCA), International Conference of Building Officials (ICBO), and Southern Building Code Congress International, Inc. (SBCCI), each of which had developed separate sets of model codes used in different sections of the country. Through the International Building Code, the ICC has produced a single set of codes enabling code enforcement officials, architects, engineers, designers, and contractors to work with a consistent set of requirements nationwide.

IBC 715—Opening protectives

A Local Standard

In addition, other standards may apply to fire-rated doors being specified in large cities in the U.S. In New York City, for instance, the Department of Buildings requires approval of certain materials and equipment that affect public safety, health, and welfare and are usually a permanent part of a building—fire-rated assemblies are among them. Established in 1969, the Materials and Equipment Acceptance (MEA) Division was created to implement this requirement and ensure that prescribed permanent building materials and equipment meet the minimum national standards required by the Building Code. The product must be tested by a Department-accepted testing lab or service. All manufacturers that receive product acceptance from MEA are given an MEA number for the product and provided a copy of a report that lists the model numbers and describes the material, assembly or equipment and any conditions of the acceptance. Architects should note that it is the responsibility of the manufacturer to obtain MEA acceptance for the product, and that it is the building owner's responsibility to ensure that all materials and equipment used in the building construction have MEA numbers where applicable. Failure to do so places the building owner in violation. Many other major cities have similar programs.

Where necessary or required by local code, an additional smoke seal must be added to an assembly to comply with a smoke and draft control rating. Doors that open onto corridors that are used for a means of egress may be required to have such a rating. To be qualified for smoke and draft control, an assembly is tested for two parameters—a fire test and a test to indicate how much air leaks around the door, both air at room temperature and air that has been heated to 400 degrees. The amount of air leakage must be below NFPA 105 standards, and the assembly must be equal to a minimum of 20-minute fire test.

Photo courtesy of Artistic Doors & Windows

Whatever the application, architects should note that a fire rating can be easily lost with the touch of a drill bit. With the drilling of a small hole, a perfectly installed, certified fire door can lose its rating, taking what may have been a 90-minute door down to a door that will be useless in the event of fire because smoke and heat can easily penetrate even a tiny opening in a door. Even tacking a nameplate on a fire-rated bedroom door can be a breach of the door face, which may render the door ineffective in the event of fire. This is particularly true if the nail or screw has penetrated deep into the fire core.

Frames

There is a saying in the industry that a door is only as good as its frame—and the good news is that fire-rated doors no longer have to be installed in steel frames. Many manufacturers offer complete fire door and frame packages, representing several advantages to architects. Such all-in-one door and frame systems dispense with the need for applying unattractive surface intumescent around the door, additional framing preparation, and/or extra packing between the frame and the stud—which in turn reduce cost for supplies and labor. "Architects may not realize the importance of a complete listed assembly," adds Solomon, "and the best way to go is usually to purchase the entire fire-rated assembly from a reputable manufacturer who delivers certified products."

Glass

Until recently, fire doors that contained glass were virtually slabs of steel with small sections of polished wired glass. Still the most frequently used type of glazing material, wired glass has been around for more than 100 years and is known to be effective in a fire. Intense heat causes ordinary glass to splinter or blow apart, whereas the wire mesh keeps the glass intact. As a result, wire glass has been the performance benchmark in the industry for nearly a century and was, in fact, one of the only materials that could stand up to fire testing. The downside is that wire glass has hazardous breakage patterns, and can leave dangerous jagged edges. While recognizing the potential danger of broken wire glass, building codes acknowledged its superior performance in the event of a fire, hence its specification in many fire rated doors.

In response to a safer, more attractive, glazing material, manufacturers developed a new round of products to challenge the supremacy of wired glass. The new glass is largely a function of advances in glass ceramic, a material well known to withstand heat. Displaying a low coefficient of expansion when heated, ceramic is used in diverse "hot" applications including car engines. In fact, some new product options are actually transparent ceramic that looks like window glass but has the superior heat-resistant qualities of ceramic.

Regular flat glass will not perform under extreme temperatures; it breaks at around 250°F, allowing the spread of fire and smoke. To be fire-rated, glass is placed in a test furnace in temperatures of more than 1,600 °F. The better the glass is able to withstand the heat, the higher its rating. To achieve levels above a 20-minute rating, glass is also subject to the hose test. Only the glass that is able to withstand the drastic changes in temperature from an intense blaze to a deluge of cool water can be fire rated. The purpose is to simula real situation during a fire where water from a sprinkler system douses and determ whether the glass will function as a barrier or fail, enabling smoke and fire to spread. F rated glass that has passed these rigorous tests should remain intact and restrict expansion of flames and smoke.

Typically, wired glass carries a fire rating of 45 minutes. So well do transparent g ceramic products withstand heat, they can achieve a three-hour fire rating. Glass ceran also have safer breakage patterns and can withstand four times the impact of traditi wire glass, satisfying Consumer Product Safety Commission (CPSC) 16CFR1201 (Cate II), the highest impact safety standard for window glass. CPSC is charged with protec the public from unreasonable risks of serious injury or death from more than 15,000 t of consumer products under the agency's jurisdiction. ■

Installation—What to Know

While not strictly the purview of architects, installation considerations can prove helpf in creating the best possible environment and assuring the effectiveness of fire rat doors. Particularly for architects who make site visits, several of the followi considerations may be of particular value.

When it comes to actually putting the fire rated assembly in place, the NFPA 8 "Standard for Fire Doors and Fire Windows" also provides valuable guidance f installing fire doors and frames and hardware.

If a fire-rated assembly is intended for interior use, i.e., areas unexposed to the weath it is generally appropriate for apartment entrances, elevator shafts, hallways, stairwel electric service closets, and any area deemed a fire protection zone. With doors rat Category A, no additional edge sealing is necessary—they have been evaluated witho intumescent. Category B doors, on the other hand, do require an additional edge-seali system that must be installed by a licensed installer.

Category A doors may be installed in a metal or wood frame. If the fire-rated doors a frames have been tested in a steel stud/gypsum wallboard, they are set to be install in any type of wall assembly, provided the installation is completed by qualifi personnel according to the manufacturer's instructions.

Following are additional installation concerns:

- Before installation, all substrates should be thoroughly cleaned and properly prepar and using the methods recommended by the manufacturer.
- Rough opening sizes should conform to specified shop drawings.
- Walls should be the correct type and rating to receive door assemblies.
- The door unit should be acclimated to the environment at the actual installation s 24 hours prior to installation.
- Generally speaking, all fire-rated doors should be installed in accordance with manufacturer's instructions.
- Particular care should be taken to use the proper type and length of screws that t manufacturer requires.
- After doors have been installed into frames, they should be shimmed as necessary adjust spacing for proper fit and operation of entire unit.
- In installing hardware, manufacturer's instructions should be followed exactly to comply with tested assembly requirements.
- Hardware should be fitted for unrestricted function.

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0610artistic-1.asp***

EARNING OBJECTIVES

.fter reading this article, you should be able to:

Discuss the recent trends in fire-rated doors
Recognize the types of fire-testing that meet codes
Analyze the requirements for fire-rated door glass and hardware
Identify national codes and standards pertaining to fire rated doors

NSTRUCTIONS

.efer to the learning objectives above. Complete the questions below. io to the self report form on page 244. Follow the reporting instructions, nswer the test questions, and submit the form. Or use ıe Continuing Education self report form on *Record's* web site—*rchrecord.construction.com*—to receive one AIA/CES Learning Unit ıcluding one hour of health safety welfare credit.

UESTIONS

Fire-rated wood doors work effectively as barriers against fire, especially when passing recognized tests such as
- **a.** The National Fire Protection Association (NFPA) 252, "Standard Methods"
- **b.** Fire Tests of Door Assemblies
- **b.** NFPA 80 Fire Rated Doors standard
- **c.** CPSC 16CFR1201 (Category II)
- **d.** Federal Emergency Management Agency stipulations

The primary objective of a fire door is to:
- **a.** conform to specifications of the Materials and Equipment Acceptance (MEA) Division.
- **b.** contain a fire and curtail its spread, as well as limit excessive heat and reignitable gas for a certain period of time.
- **c.** conform to product certification and standards that are prescribed by the local building code.
- **d.** to halt the spread of flammable materials.

Fire doors are rated by:
- **a.** their ability to withstand smoke.
- **b.** the thickness of the fire-retardant component of the door.
- **c.** the time that a door can withstand exposure to fire conditions.
- **d.** whether they can stand up to the hose stream test.

The first model code in the U.S. requiring positive-pressure testing of fire doors is intended to:
- **a.** qualify fire doors for smoke and draft control.
- **b.** raise the amount of allowable glass in a fire door from 9 square feet to more than 22 square feet.
- **c.** enable the door's fire retardant component to become miniaturized.
- **d.** more accurately address real-world fire conditions.

5. To be fire rated, all products must have:
- **a.** passed the hose test.
- **b.** been approved by ASTM.
- **c.** undergone testing at a recognized certifying laboratory.
- **d.** been submitted to the NFPA for review.

6. To be qualified for smoke and draft control, an assembly is subject to:
- **a.** a test to indicate how much air at room temperature leaks around the door.
- **b.** a test to indicate how much air leaks around the door, both air at room temperature and air that has been heated to 400 degrees.
- **c.** a test to indicate whether the door has been properly stained or painted.
- **d.** a test to indicate whether there are cracks in the door.

7. Complete fire door and frame packages represent several advantages, except which of the following:
- **a.** All in one packages can have lower fire ratings.
- **b.** They dispense with the need for applying unattractive surface intumescent around the door.
- **c.** Additional framing preparation, and/or extra packing between the frame and the stud are not necessary.
- **d.** There is a reduced cost for supplies and labor.

8. New fire rated glass products provide several advantages, including:
- **a.** exemption from standard fire rated tests
- **b.** dramatic increases in the amount of glass allowed in fire-rated doors
- **c.** doors that don't have to be equipped with "listed" hardware
- **d.** in a non-temperature rise 90-minute door, the increase is from 100 square inches to a generous 400 square inches.

9. Because a fire door must be in a closed and latched position to fulfill its objective as a protective barrier in the event of a fire:
- **a.** Glass ceramics, which have safer breakage patterns and can withstand four times the impact of traditional wire glass, should be used.
- **b.** Category A doors should be installed.
- **c.** The doors must be in a normally closed position, must automatically close using components such as hydraulic closers or spring hinges, or a listed door is required.
- **d.** Non-metallic labels should be attached with an adhesive back

10. Fire door labels must not be made out of:
- **a.** wood
- **b.** steel
- **c.** brass
- **d.** aluminum

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Collaborating with Contractors for nnovative Architecture

Presented by:

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CONTINUING EDUCATION

Use the learning objectives below to focus your study as you d **Collaborating with Contractors for Innovative :hitecture.** To earn one AIA/CES Learning Unit, including one ır of health, safety, welfare credit, answer the questions on page , then follow the reporting instructions on page 191 or go to Continuing Education section on *archrecord.construction.com* l follow the reporting instructions.

RNING OBJECTIVES

er reading this article, you should be able to:

cplain the primary benefits of architecture firms llaborating with construction firms throughout the oject life cycle.

valuate the pros and cons of collaborating with ntractors, including insurance and legal issues.

lentify and describe at least four types of llaborative project delivery.

escribe anecdotal examples of how llaborative project delivery led to design novations and/or client satisfaction.

Collaborating with Contractors for Innovative Architecture

With construction more complex than ever, architecture firms are joining forces with construction experts to solve tough problems and innovate. The key is to understand the benefits—and challenges—of architect-contractor partnerships

By: C.C. Sullivan
Communications Consultant and Author

> ***Buildings are more complex than ever, and the knowledge needed to build them well is increasingly in the hands of specialized builders, fabricators, and manufacturers***

Since the dawn of the profession, the best architecture has been created in close association with construction professionals. That's no surprise. Today, however, alliances between designers and builders are getting tighter and more pervasive. Buildings are more complex than ever, and the knowledge needed to build them well is increasingly in the hands of specialized builders, fabricators and manufacturers. Closest to the source are construction managers and general and specialty contractors. By building on the constructor's experience—literally—savvy architects are producing innovative, best-in-breed architecture.

Trends and statistics bear out this tendency. A new generation of younger architects is embracing design-build, the formal and contractual union of the two fields. At the avant-garde end of the spectrum, architects like Frank Gehry and Thom Mayne have fashioned unique work models built on early and deep alliances with contractors. And "serial builders" like banks and franchise retailers have shown their preference for marriages of constructors and conceptualists to ensure both visual impact and bottom-line performance.

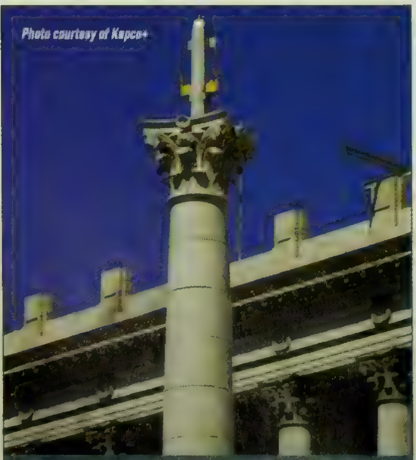
Photo courtesy of Kepco+

Terra cotta column capitals constructed with original terra cotta and placed on a trailer to be shipped to the jobsite for installation on the Utah State Capitol

For technically demanding projects, designers and builders are practically joined at the hip. Under the direction of Robert Fraga, for example, the U.S. Postal Service dealt with such high-risk projects as the clean-up of its anthrax-tainted Brentwood facility in Washington, D.C., by employing novel partnerships of design firms and builders. Complex restoration projects bring specialty contractors into the mix during schematics, as at the Utah Stat Capitol's terra-cotta dome restoration; there, a stone-panel specialist was retained eve before the architect was. Across the board, when building projects are large or complex, th most successful project teams boast of formal and informal collaboration structures.

No surprise, then, that such teamwork is becoming standard in some circles. Buildin information modeling (BIM) is increasingly used by project teams to maximize knowledg sharing; the recently opened Denver Art Museum by Daniel Libeskind stands as a prim example. Many state and federal agencies—including the General Services Administratio (GSA)—have favored proposals that stipulate early contractor involvement. And it's n just in the public sector. In fact, the negotiated projects of the private sector are a hotbe of collaborative strategies, including projects delivered by traditional, hard-dollar biddin

Industry groups recognize the trend, too: The AIA recently joined the Associated Gener Contractors of America (AGC) and the Construction Users Roundtable (CURT), an owner group, to announce a new collaborative working group to spearhead industr transformation. "This undertaking represents an unprecedented level of collaboratio between building owners, designers, and contractors," says Norman Strong, FAIA, an A Vice President and managing partner at The Miller Hull Partnership, Seattle.

The transformation has already begun. A desire to tame cost and schedule is driving the tren but so is the possibility of breakthrough solutions. Architects realize that by working more close with contractors earlier and throughout the project cycle, they stand to gain more—and lose les

Courtesy of
Barneys New York/Adrian Wilson, photographer

In a retail rollout the branches may all be unique, but the themes and materials and construction techniques remain somewhat consistent for the client's look and brand

Endorsing Collaboration

Though it's more common and customary, architect-contractor collaboration is by no mea limited to a single model. There are many paths to success, with partnerships ranging fr legal joint ventures and design-assist contracts to informal marketing and advisory affiliatio Yet many architects—armed with advice from lawyers, insurers, and senior partners—st shun close associations with contractors. Many will gladly seek advice from favor contractors—in return, perhaps, for a good word to the owner during bid reviews. B why, they ask, should architects compromise their independence and expo themselves to added risk?

reason why is that most knowledge of construction technology and cost is in the ls of specialty subcontractors and manufacturers, not architects and engineers," says les B. Thomsen, former chairman and CEO of 3D/I, a construction-management (CM) A/E firm recently acquired by Parsons. "So we need to figure out contractual ways to ge subcontractors in the design process—and get that brain power."

ng maximizes those benefits, adds Robert Fraga, president of the Construction agers Association of America and former facilities portfolio manager for the U.S. Postal ice who just joined the GSA as assistant commissioner for capital construction program agement. "Try to bring in the contractor as early as possible, because they have a great of knowledge that designers don't have and they're typically in tune with market itions and cost," he explains.

innovation comes in surprising places, such as site logistics and alternative methods, Boyd Black, director of project management services for the University of Illinois at ago and a board member of the Construction Owners Association of America. "These are gs that architects don't have first-hand knowledge of, and they can lead to some very tive solutions," says Black. "The contractor has a very down-to-earth, practical role."

ther for multiple midsized projects or a national franchise rollout, when the projects are erous and repetitive such architect-contractor collaborations uncover useful iencies, says Robert W. Mullen, CEO of New York City-based Structure Tone. "In a retail ut the branches may all be unique, but the themes and materials and construction niques remain somewhat consistent for the client's look and brand," says Mullen. A l owner might hire a CM who then selects local contractors as partners and hones the ery process through each iteration. "It's a prime opportunity to create an assembly-line oach, so that the project team just keeps getting better and better," he adds.

ducing Risk

nd a better grasp of materials and techniques, Thomsen adds a second reason to borate closely: "Things always go wrong, so you want to have that trusting relationship."

bottom-line savings of earning a contractor's confidence can be significant. "Risk is a concern for contractors," says Fraga. "Think of risk as dollars: Shifting all the risk to somebody else just costs the owner a lot more money."

Partnering with contractors also helps minimize uncertainty on the job site, adds Mullen, such as by fine-tuning the subcontractor and materials selection processes or by creating more comprehensive insurance programs. "It can extend to labor solutions as well, by minimizing field labor and maximizing off-site work when you can," he explains. "That's certainly an important topic in the very active, busy construction markets across the country that aren't matched by gains in the workforce."

> ***surers would like s many subs as vailable and the wner involved in oject planning, so ey can talk about ng-lead items and ys to make things sier to construct."***

rers concur that collaborative structures and activities reduce risk, and many offer ced bonding costs and lower deductibles for professional liability insurance if the ct requires such teamwork. Examples include "risk-mitigation" credits granted to ct teams that perform a joint constructability review before work begins, as well as its available for when a submittal management process is in place or when scheduling stones are met. "Insurers would like as many subs as available and the owner involved oject planning, so they can talk about long lead items and ways to make things easier to construct," says Lorna Parsons, a managing director for Victor O. Schinnerer Co., Chevy Chase, Maryland. "And we'd like to see them talking about these things while it's still on paper, long before anyone starts digging holes."

To get the savings, however, the project team has to work together, says Parsons. "All of the credits require a high level of collaboration between architect and contractor, which we think is beneficial for everybody," she explains. "When we looked at our largest claims, two-thirds of them are for 'delays and extras,' where the project goes over schedule and budget. When the architect and contractor aren't in synch, big claims are made and only the lawyers win."

Since many of those costs are ultimately borne by project owners, there's another market impetus for architects to join forces with contractors: the clientele. Experienced owners may prefer it—or insist on it.

"A lot of an architect's work is for serial builders who are wondering, 'What do you do when you have a continuous building program?'" asks Thomsen. "Routine owners need to be savvy," adds Fraga, citing statistics that 90 percent of projects are undertaken by repeat builders. "All of us in the design-and-construction business want to optimize the facilities supply chain. And it's getting more complex every day with new technology, safety, and environmental requirements. No single individual can totally control the supply chain, so it is essential—not a luxury—to collaborate."

Some owners see architects who don't play well with contractors as a vanishing breed. "Collaborate or die," Fraga sums up.

Methods for Collaboration

Joining forces with a contractor may seem like an obvious or easy thing to do. But savvy building veterans say it's filled with nuance.

"They have done Myers-Briggs personality profiles on architects and contractors showing that they have two very different personalities that drive them into their respective professions," observes G. William Quatman, FAIA, a Kansas City-based lawyer and author specializing in teaming and design-build. "So we're putting opposites into a room and telling them to cooperate. It's a challenge that's bigger than the obvious differences between the two."

> ***You have to have negotiations, because conflict is inevitable.***

To bring together these disparate world views, Fraga recommends four critical components for successful collaboration:

- "Most important: all stakeholders must *align their expectations* and objectives. It has to be a win-win for all stakeholders."
- "*Communications* must be superior for all stakeholders—for expectations as well as systems—so that people can react quickly."
- "You have to have *negotiations*, because conflict is inevitable."
- "And the last element is *compromise*."

Risk-averse by nature, many contractors would add a fifth component: *timing*

"The biggest thing is just getting everyone together and getting ideas and opinions out on the table early, before you get too far down the road and changes can't be made," says Bob Durrant, plant and preconstruction services manager with Kepco+, an architectural cladding contractor known for panelized stone. "On a stone job, the earlier you get your blocks and fabricator secured, the better your product's going to be be. It's a long-lead item and a lot of people don't take that into consideration."

As an example, Durrant cites the Utah State Capitol restoration—a "design-assist" scenario involving a "project definition" phase consisting of workshops and the preparation of a final scope document. According to David H. Hart, AIA, executive director of the state's Capitol Preservation Board, the process started with an RFP and qualifications-based selection (QBS) for design and construction providers for each contracted portion of work. Those firms that made the first cut received a 300-page "guidelines-and-imperatives" document from the owner, with technical guidelines such as matching existing colors and detail dimensions on the landmark building. Then several firms were short-listed and given a not-to-exceed budget. Each team was paid a fee to detail and design a solution to meet the predetermined budget. All accounting was open-book, with a negotiated process for the bidding phase.

The team with the best solution would be converted to a design-build contract if they could agree on a budget with the board. If not, the state could put out their solution for open bidding. "So there was an incentive for the contractor to get the job," says Hart.

After architect and contractor were both on board, a three-day-long workshop was held to review the capitol design guidelines and imperatives. Specialty contractors for each trade were brought in to define the full extent of the work. The result was a scope document with about 20 percent construction documents. "The process helped keep scope creep out of the equation and kept us on schedule, with a wonderful synergy from that technical assistance," says Hart, who calculates that there were only about 1.5 percent change orders for the $170 million project, versus 8 percent to 10 percent for typical state buildings.

Although the construction teams were paid for their design assistance, the Utah State Capitol process represented a tradeoff: Precise collaborative planning required a serious time commitment even before work was awarded. "At times it was frustrating because there was so much involvement, but the outcome was great because we had so much input from the design engineer and the terra cotta manufacturer," says Durrant. "It was really a good experience."

Other states and public agencies may find such collaborative options constrained by procurement regulations. According to the AIA Design-Build Knowledge Community, QBS is not allowed in Georgia, Iowa, South Dakota or Wisconsin, for example.

"We would actually like to use the collaborative roles more than we do," says the University of Illinois' Black. On large projects, the state permits construction management (CM), allowing Black to bring in the construction firm at same time as the architects and engineers.

The Right Partners, the Right Process

Experts in construction offer two rules for architects interested in collaboration: choose your partners carefully, and tailor your service approach. One well-known international firm, for example, has sought deeper control of its pioneering designs by working closely with specialty contractors in structural steel and titanium cladding. The partnerships inform the firm's studio structure, information-technology choices, and to some extent, its client list.

"To successfully innovate, it's important to develop longer-term, better relationships with suppliers and subcontractors," Fraga observes. "Prequalification is essential to that." A prequalification effort should encompass a review of three measures, he explains:

- Capabilities
- Past performance
- Past experience

Performance can include quantitative measures such as successful completions as well as more qualitative traits, such as the company's track record of "customer orientation," Fraga explains. And past experience means types and size of projects as well as specific construction techniques.

Considering possible project outcomes is useful in these situations. "Choose your contr partner thoughtfully," adds Parsons. "If they bring in a value engineer and the collabor between the contractor and the architect is not good, that can damage project or at a mini increase liability for the architect. And fast-track has a whole set of problems of its own.

"It's really a three-way equation: Who fits best with the client, the project type and loca and with the architect culturally, in terms of how the firm services clients and its peo skills, services and attitudes," says Mullen.

For a growing number of firms, working together can mean involvement by the architect in drawings and fabrication—a nontraditional role that many specialty contractors would r not consider. To extend the architect's domain to the shop floor, some firms have ada CAD/CAM technologies for architectural use. The software allows the firms to coord designs directly with key fabricators by interfacing with robotic cutting and milling tools.

This direct transfer of architectural CAD data not only increased the architect's control o construction process, but it also reduced the chronic overlap in creating working draw says 3D/I's Thomsen. "I've heard estimates from A/E firms that between 30 percent an percent of construction documents are discarded and replaced with shop drawings. That much as 2 percent of the construction cost of the project that we're throwing away, explains. And it's more than a simple loss of money, he adds: "It's also a quality loss."

The idea of having more control and being more productive has propelled architects' us building-information modeling, or BIM. And conversely, as Black points out, the availal of BIM software has actually boosted interest in collaborative project delivery. "When have the contractor involved at the early phases, tools like BIM save time and create a r coordinated product," says Black.

Yet there are impediments to the widespread use of BIM even though "the benefits are huge," says Parsons. "The risk is, who controls the software and who is putting pieces of design into it. Will it allow a vendor, for example, to put the specifications in—and is the architect liable for that? Those questions are not answered yet." Other insurance and legal specialists agree with Parsons that BIM has the potential to go either way. "If it's not used appropriately," she cautions, "architects can come up with short end of the stick."

> ***"The days of desig bid-build as domina method are going the wayside," say Fraga. "Owners ne to be sophisticate and have an arsen of delivery systems***

A recent article in the newsletter *Construction Litigation Reporter* contends that BIM is more than a technology—it's an entirely new delivery sys The author, attorney Howard W. Ashcraft Jr., notes that several emerging technolo including BIM are now accelerating the need for collaboration.

Comparing Collaborative Delivery Systems

Which raises the question of project delivery: If a project demands a high leve collaboration, the architect can advise the owner on the optimal method. "The day design-bid-build as dominant method are going by the wayside," says Fraga. "Owners n to be sophisticated and have an arsenal of delivery systems."

Indeed, collaboration with contractors tends to lead to nontraditional approaches, as traditional hard-bid approach is based on a (hopefully) healthy tension and competi between architect and contractor. In collaborative structures, instead of checks-and-balar

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there may be mutual incentives. "You share the risks and you share the benefits of the project," says Fraga. "Instead of firm fixed-price, there can be a guaranteed maximum price, or GMP, where you are audited, so you know what the contractors' exact costs are."

Quatman notes that AIA's most recent position on alternative project delivery has been that architects should lead, regardless of delivery model. "If architects are going to heed the call, they need to take on guaranteed completion, guaranteed cost, indemnity for all kinds of hazards, liquidated damages, OSHA responsibilities and more," he explains. That's not common in the marketplace, adds Quatman, "But those who have done it say they'll never turn back." To pick the right alternative method, Fraga advises, "Let the project needs dictate the delivery system."

- **Design-Build**

Design-build has emerged as the classic collaboration model, and an increasing number of architects swear by it. The contractor remains close at hand from beginning to end, and design and construction professionals speak to the owner as one. "There are lots of versions of design-build that are cost-reimbursable and work real well," says Thomsen. Benefits include a single point of responsibility for the client and a reduction of change orders and delays.

Architects should take care, however, especially in the more common contractor-led set-up. "That way is most problematic for the architect and can increase your risk," says Parsons. "If you are hired by a contractor who just needs a seal, they may cut off your construction phase services, and construction administration is your last best chance to catch errors. So the scope of services needs to be appropriate." In addition, because the contract price is fixed in very early stages of design development, the contractor may try to hold the architect responsible for increased costs from any downstream design changes.

The AIA and many architects recommend the architect-led version of design-build, but that also has inherent challenges. "The architect has to be bonded and is responsible for means, methods, and jobsite safety," says Parsons. "If you are the prime, it all floats up to you." A third option is to form a limited-liability corporation (LLC) or joint venture with the construction company. "You still have to be careful because construction risk still flows up to you. The LLC is popular because that deals with some of that risk issue," says Parsons.

Of course, design-build is not always an option. A few states don't allow the contracting method at all—Alabama, Iowa, Michigan, Rhode Island and Wyoming—though the other 45 allow some applications. "And in New York, there's a turf battle between administrative agencies and the courts," says Quatman. "The licensing board takes the position that it's illegal, though the state courts have said it's legal."

- **Construction Management**

Construction managers oversee typically more complex projects, either as an advisor to the owner—while the architect and contractor retain conventional roles—or as an agent, which means the CM has the authority of the owner. In a third approach, known as CM-at-risk, the CM acts as constructor, coordinating the project and occasionally taking on the role of the general contractor. The CM assumes all liability and makes an early cost commitment, according to the AIA California Council's *Handbook on Project Delivery.*

The continuous oversight of the CM approach appeals to owners that may lack the in-house resources to supervise their own projects. Many architects chafe at the CM's powerful role, and rightly point out that any beneficial dialogue between designer and owner is mediated or even cut off. Other architects say they enjoy the CM's tight control of cost, schedule, constructability. A positive relationship between architect and CM can make up for the that the architect can't communicate directly with the owner.

- **Bridging**

Bridging is best described as a combination of traditional bid delivery and design-buil this approach, the owner hires the architect for preliminary design, and the same arch becomes the owner's representative during the construction phase. The design docum prepared by the architect are used to choose a design-build firm, which completes construction documents (CDs) and builds the project.

According to critics, crucial collaboration in the design phase is generally not a formal of this delivery scheme, and conflicts may arise between the original architect and design-builder. But as noted in *Handbook on Project Delivery,* there is ample attention to design issues—and a single point of responsibility during the CD and construction pha Many highly innovative designs have been developed for the GSA and other clients u bridging contracts, such as Perkins & Will's Los Angeles Federal Courthouse.

- **Design assist**

Another decidedly collaborative model, design-assist, involves early participatio programming and design by the contractor. The contractor might review site selec program intent, project feasibility and cost and schedule targets. Other tasks typically inc detailed budget studies, ongoing cost estimates and determinations of "value"—tha whether the right dollars are being spent in the right places, given the project's goals.

Design-assist is seen as a formal process for architect-contractor collaboration that ca highly detailed and controlled. For the renovation of the Utah State Capitol, for example state's Capitol Preservation Board issued a set of "guidelines and imperatives" for contra and then led a series of workshops to solicit highly detailed cost and constructa documents from participating teams. Generally, however, design-assist is more popular i private sector, where there are no competitive bidding rules. For public projects, owners often prohibited from hiring a GC until they are ready to bid; in some cases, however, pu sector owners may work with a CM for design-assist to get around the exclusion.

Design-assist has enjoyed positive reviews recently, especially on the heels of successes as the San Francisco Federal Office Building, a highly innovative building deli by design-assist. "There's better cooperation between designer and contractor because th sitting side by side, and issues are resolved along the way," says Quatman. "Design ana value engineering and constructability reviews are done as the design progresses."

- **Other methods.**

Some veteran owners have developed their own home-grown collaborative processes, created in conjunction with architects or builders.

"When I became the client, we came up with 'project definition' to clearly characteriz project and know much more so we would be capable of delivering it on time and on bud says Utah's Hart. "In design-bid-build and even design-build there is still this adversarial relatio I kept asking myself is there not a better way to have a structure that's more collaborative?"

Hart tried out project definition on two capitol projects, including a new 89,000-square- $45 million building. "There were no change orders and no scope creep," he says. But areas seemed ripe for improvement, so when Hart prepared for the larger capitol renov project, he turned the selection process on its head. "You can get a lot from an architec we really wanted to have the contractor's attention," he recalls. "So we said, 'What if w the contractor first, and they hire the architect?'"

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Legal Considerations

Hart had a good idea—but one that won't work for everyone. In many states, the architect has to be hired first. Other legal restrictions dictate how architects and contractors may work together—some offering useful protections to the architect. "In Illinois, for example, if the contractor hires the architect, that fact has to be disclosed to the owner in contract, and the contractor cannot replace the architect without the owner's consent," says Quatman. This helps avoid the situation in which an owner hires a team based on the choice of architect, only to see the contractor subsequently dump the original firm.

In fact, awareness of construction law is vital for architects interested in project collaboration. Inextricably linked with risk, legal considerations may largely decide how and when architects choose to collaborate with contractors.

For example, the growing area of law known as "economic loss" doctrine has prevented contractors from suing architects in design-bid-build delivery. "If the contractor's loss is only economic, the contractor has to go through the owner to get to architect," Quatman explains. Another issue is state licensing, which in some states is a requisite for holding the prime contract on a project. "Architects are licensed in every state, and contractors are licensed in about half of the states," Quatman points out. So when the two affiliate formally, as in design-build, the architect may have to take the lead.

In fact, project delivery methods shape many legal concerns. For example, "In design-build, there are fewer lawsuits than in traditional procurement," explains Quatman, who is also 2007 chairman of AIA's Design-Build Committee. "If there's a design problem, the A/E and GC do work it out. Designer and contractors see an indirect benefit because there are fewer claims."

To complicate matters, two sets of strictures apply to cases where the architect and engineer form a legal partnership or LLC—licensing law and corporate law—and they don't always dovetail nicely. Some states may restrict majority ownership of the entity to licensed professionals, or the LLC that seems advantageous for tax reasons may be restricted or forbidden under the licensing statutes.

The Right Outcomes

Beyond avoiding legal problems, how do architects measure whether their collaboration strategy has paid off? Innovation is one gauge, though it's important to focus on a range of measures, say experts.

"Ultimately, we are interested in outcomes, which are traditionally quality, cost, and schedule," says Fraga. "But that actually is not enough. I have delivered buildings on time and on budget and failed because I've delivered the wrong building! You need to have more." For that reason, on any project Fraga adds three more for a complete yardstick of success:

- Customer satisfaction
- Supplier, contractor, and consultant satisfaction
- Employee satisfaction

Eventually an architect may want to work with the same team players again, says Fraga, so it matters to have satisfied builders and vendors. Employees should benefit from the process, and, of course, the client must feel good about the final product.

Thoughtfully outlining goals at the outset makes the final evaluation all the more meaningful. That's another reason that Hart stands by "project definition" as applied at the Utah State Capitol. The results of the $8.5 million drum-and-dome portion, for example, included an innovative panelized terra-cotta cladding and an on-budget, on-schedule finish. "The contractors really complemented the architects, who were freed up to focus on design," says Hart. "A wonderful synergy came out of that technical assistance."

For contractors, the benefit of such tight alliances can accrue from the architect's enhanced focus. "Rather than architects designing in a vacuum, and perhaps not considering the ramifications of means and methods—which can mean additional cost—this pulls them out in front so we can contain cost," says Kevin L. Brown, project director with Jacobsen Hunt nt Venture, Salt Lake City, which served as the general contractor for The Utah State Ca ol project.

Another way to consider success is by what's missing—things such as excessive ch ge orders and lawsuits. "The teaming concept works," Quatman summarizes. "The st relationship is built, and for economic survival reasons architects and contractors ch se to resolve issues rather than litigate disputes." ■

Collaboration and Innovation Case Study: The Utah State Capitol

To restore the historic Utah State Capitol to its former glory, owner's representative Davi H. Hart, AIA, executive director for the state's Capitol Preservation Board, orchestrated unique and highly collaborative process he calls "project definition." The approach calle for selecting contractors, developing technical solutions and cost estimates, and the hiring a design-build team to complete the work.

The benefits of the design-assist delivery included tight cost control, minimal chang orders, and novel solutions to longstanding problems.

One of Hart's main concerns was how to restore the dome and rotunda to its original 1916 Richard Kletting design, which called for neoclassical details rendered in terra cotta. Working with manufacturer Boston Valley Terra Cotta and installation subcontractor Kepco+DBI, the team elected to install panelized terra cotta, a novel method that "marries the Old-World technique of terra cotta with modern curtain wall," says Hart. The most technically demanding elements were column enclosures of up to 38 inches in diameter—larger pieces of terra cotta than are typically fabricated.

The benefits of the design-assist delivery included tight cost control, minimal change orders, and novel solutions to longstanding problem

The planning during the project-definition phase was critical to the project, says Har Mock-ups of different panelized terra-cotta elements were created to assure the feasibilit of the panelized approach, saving time and money while increasing jobsite safety. To ensur that the historic landmark's modern updating would not alter its original dimensions, digital laser scan was performed to ensure the integrity of the restored capitol dome.

Collaboration and Innovation Case Study: Barneys New York, Boston

To create a new Barneys department store—the retailer's first flagship in 12 years—architect from Gensler and Jeffrey Hutchinson Associates teamed up with construction manager (CM Structure Tone during the schematic phase to address issues of constructability and cost. Th main concern, however, was keeping the final design "customer-friendly."

The collaboration relied on the CM for a range of preconstruction services includin surveying, field-verifying dimensions, alternate specifications, and cost control.

"We had a very intense estimating process, to let the client know how each departme broke down in cost," explains Dan Finnegan, vice president and national retail leader f Structure Tone. "We focused on millwork because it was central to the project and abou 40 percent of the total construction cost." In an unusual approach, five separate millwor subcontractors were hired and coordinated for the work.

A number of innovations and benefits came from the front-end partnering, says Rya Caffyn-Parsons, Structure Tone's project manager. A costly and elaborate flooring desig featuring mosaic tile, marble and wood was accomplished within budget by "outsourcing the work—offshore—to China. Working with specialty contractors in steel, ornament metals and glazing, the team conceived of a method for manufacturing an innovative shaped staircase in components to allow installation.

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0608building-1.asp***
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EARNING OBJECTIVES

fter reading this article, you should be able to:

Explain the primary benefits of architecture firms collaborating with construction firms throughout the project life cycle.

Evaluate the pros and cons of collaborating with contractors, including insurance and legal issues.

Identify and describe at least four types of collaborative project delivery.

Describe anecdotal examples of how collaborative project delivery led to design innovations and/or client satisfaction.

NSTRUCTIONS

efer to the learning objectives above. Complete the questions elow. Go to the self report form on page 256. Follow the eporting instructions, answer the test questions, and submit the orm. Or use the Continuing Education self report form on *ecord's* web site—*archrecord.construction.com*—to receive one IA/CES Learning Unit including one hour of health safety elfare credit.

UESTIONS

The project participants with the most technical knowledge about building construction are:
- **a.** Engineers and architects
- **b.** Owners and facility managers
- **c.** Manufacturers and subcontractors
- **d.** General contractors and program managers

What types of construction insurance claims are the most common?
- **a.** Acceleration
- **b.** Changed work
- **c.** Labor productivity loss
- **d.** Delays and extras

Which statement best describes the project delivery system known as "bridging"?
- **a.** Construction management at-risk
- **b.** A combination of traditional bid delivery and design-build
- **c.** Consultant mediation between architect and contractor
- **d.** Design-assist preconstruction services

Which of the following is NOT a typical benefit of architect-contractor collaborations?
- **a.** Increased awareness of market conditions and materials costs
- **b.** Considerations for shifting labor off-site
- **c.** Increased fees for the architect
- **d.** Reduced project risk

5. What are the three general measures used for contractor prequalification?
- **a.** Past performance, leadership, and profitability
- **b.** Capabilities, past performance, and past experience
- **c.** Site logistics, cost overruns, and change orders
- **d.** Location of business, size of business, and credit rating

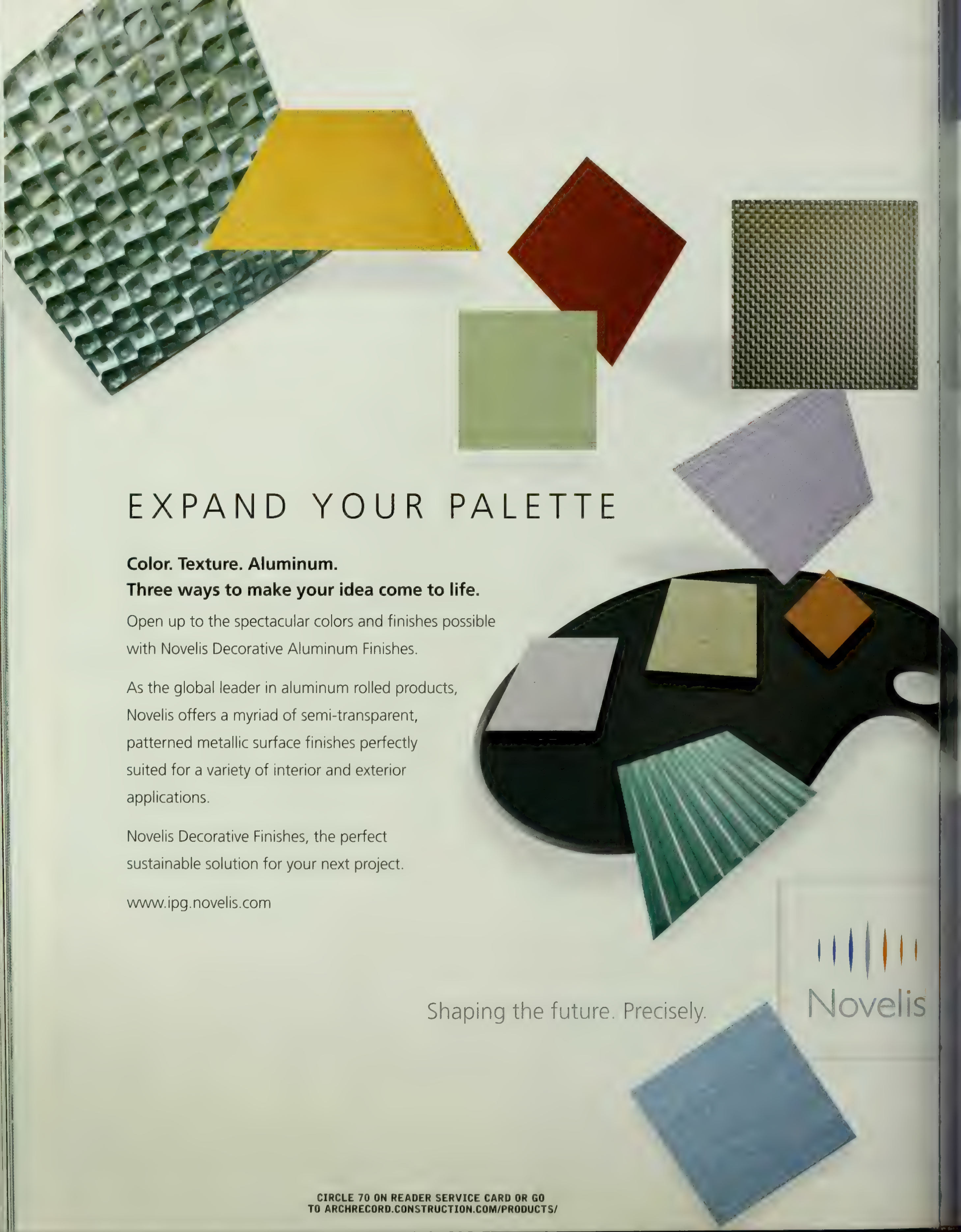
6. The "economic loss" doctrine legally holds that:
- **a.** Contractors must reimburse architects for inaccurate change orders
- **b.** Architects can be held liable for project cost overruns
- **c.** Only licensed professionals can hold prime contracts
- **d.** Contractors cannot always sue architects directly

7. Design-build project delivery is risky for architects when:
- **a.** The project is a historic restoration
- **b.** The contractor is the project lead
- **c.** It is part of a "bridging" delivery system
- **d.** Architect and contractor form a limited liability corporation

8. True or false? The availability of building-information modeling (BIM) has increased interest in architect-contractor collaboration, although some experts say that BIM may increase architect liability.
- **a.** True
- **b.** False

9. What barriers tend to reduce collaboration between architects and contractors?
- **a.** Their different personality profiles
- **b.** Owner contractual requirements
- **c.** State licensing and procurement laws
- **d.** All of the above

10. Which statement best describes "design-assist"?
- **a.** Early participation in programming and design by the contractor
- **b.** Software used for project design and management
- **c.** Use of consultants to monitor the schematic design phase
- **d.** Risk-reduction techniques used by insurers



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Residential

The rectangle serves as a worthy basis for modern interpretation

BRIEFS

The housing market has seen better days. Luxury home builder Toll Brothers announced that its third quarter profits were down 19 percent in August, and existing home sales fell 4.1 percent in July, their lowest numbers since 2004. Industry analysts debate whether this marks a serious market drought that could have implications for the overall economy, or if it is just a sign of a temperamental market. For more, go to www.msnbc.msn.com.

"Zero-energy capable" homes are energy efficient enough to be self-sustaining as built, with the addition of on-site energy generation. The city of Austin, Texas, is studying the feasibility of implementing code changes that would enable all new single-family houses built in its jurisdiction by 2015 to hold this title. This level of energy efficiency is approximately 60 percent higher than homes built to code today. Find a full press release at igreenbuild.com.

The AIA Home Design Trends survey, published last month, noted an increased popularity in energy-efficient products and systems, the strong appeal of home offices and home theaters as specialty rooms, and a continued strong market for remodeling and renovation in housing, despite the softening housing market. See www.aia.org.

A model prefab house, designed by SCI-Arc founder Ray Kappe, FAIA, is the first residence to achieve a platinum rating in the LEED for Homes pilot program. It is 80 percent more energy efficient than a conventional residence of similar size, and it is constructed with 75 percent less waste. Visit www.livinghomes.us to find out more.

"The homeownership rate for blacks has remained nearly 20 percent below the national average for the past 50 years," says a collaborative report published in August by the NAACP and NAHB. Entitled *Building on a Dream*, the publication discusses the benefits of homeownership, as well as policy recommendations to increase minorities' access to adequate housing. Visit naacp.org or nahb.org for more information.

A film on ScrapHouse, a green demonstration home built entirely of salvaged material, aired on the National Geographic Channel in September. Designed and built as the centerpiece of World Environment Day 2005 at the San Francisco Civic Center Plaza, its walls are sheathed in everything from street signs and shower doors to fire hoses and phone books. Emmy Award–winning documentary filmmaker Anna Fitch captured every step of the process for the film. Visit www.scraphouse.org for showings near you. *Sophia Asare*

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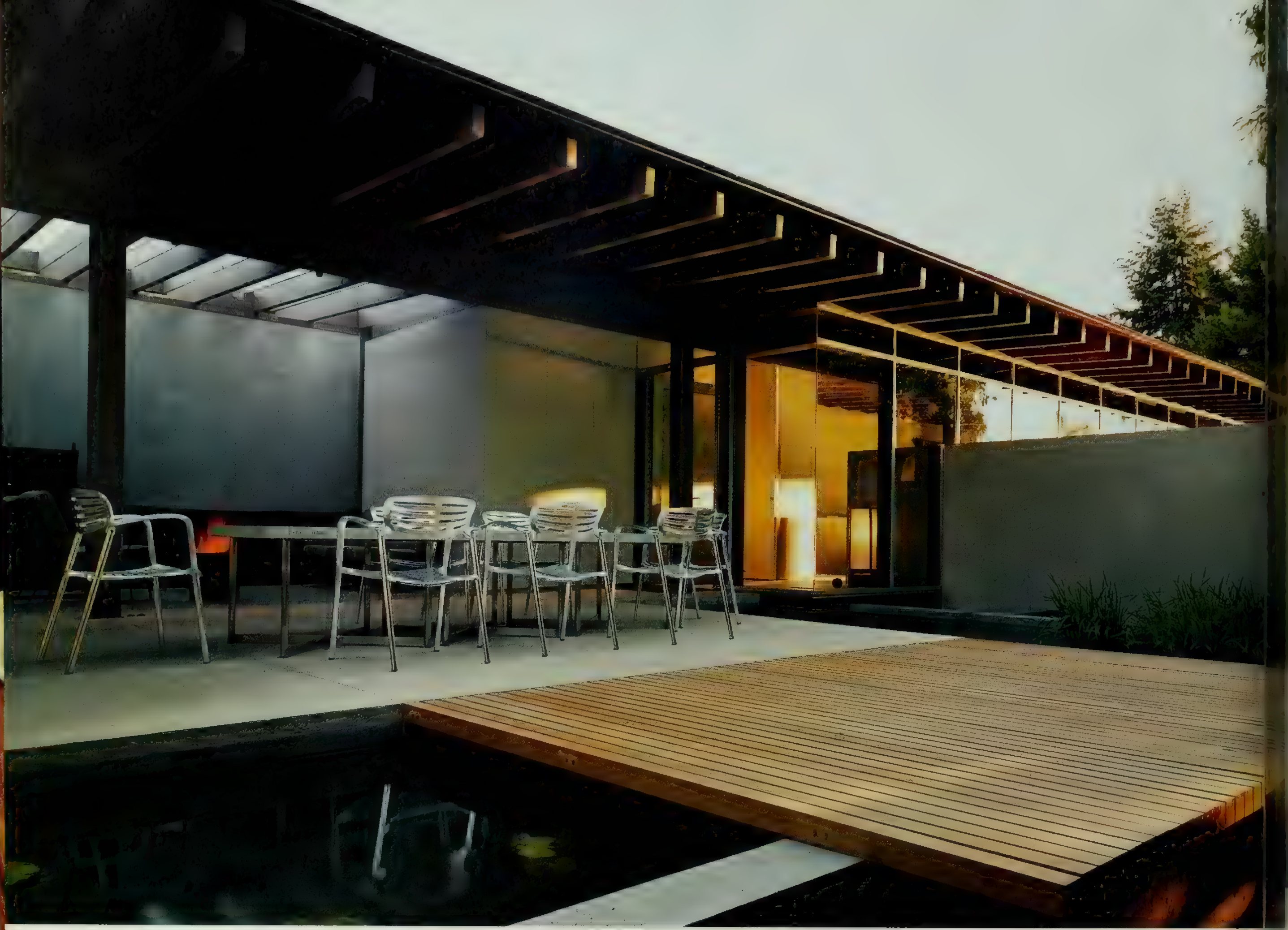
There are many reasons to design houses to be long and narrow. They ventilate well, maximize views of scenery, and provide easy circulation. These features are evident in all of the houses presented here. As well, the narrow shapes of Kansas Longhouse and Maison Goulet reflect the forms of buildings indigenous to their locales: The Midwest rural shed or chicken coop inspired the former, the Quebec farmhouse, the latter.

Building an elongated house maximizes opportunities to blend the landscape with architecture; in hugging the land, the form is defined by it. Fronting the beach and water of Puget Sound, the sequencing of indoor and outdoor spaces at Fauntleroy House fits with the rectangular sloping contour of its site. Rankin Creek House derives its shape from the creek that runs alongside it.

So, too, these houses play on the relationship between indoors and outdoors. Porches bookend the ground floor of Maison Goulet, and Rankin Creek house's observation deck opens to and cantilevers over a steep drop to the water below.

The practical advantages of this archetypal form are obvious. Perhaps this, combined with the form's clarity and simplicity, explains its abundant appeal. *Jane F. Kolleeny*



Suyama Peterson Deguchi's **Fauntleroy House** reveals a thoughtful coupling of structure with nature

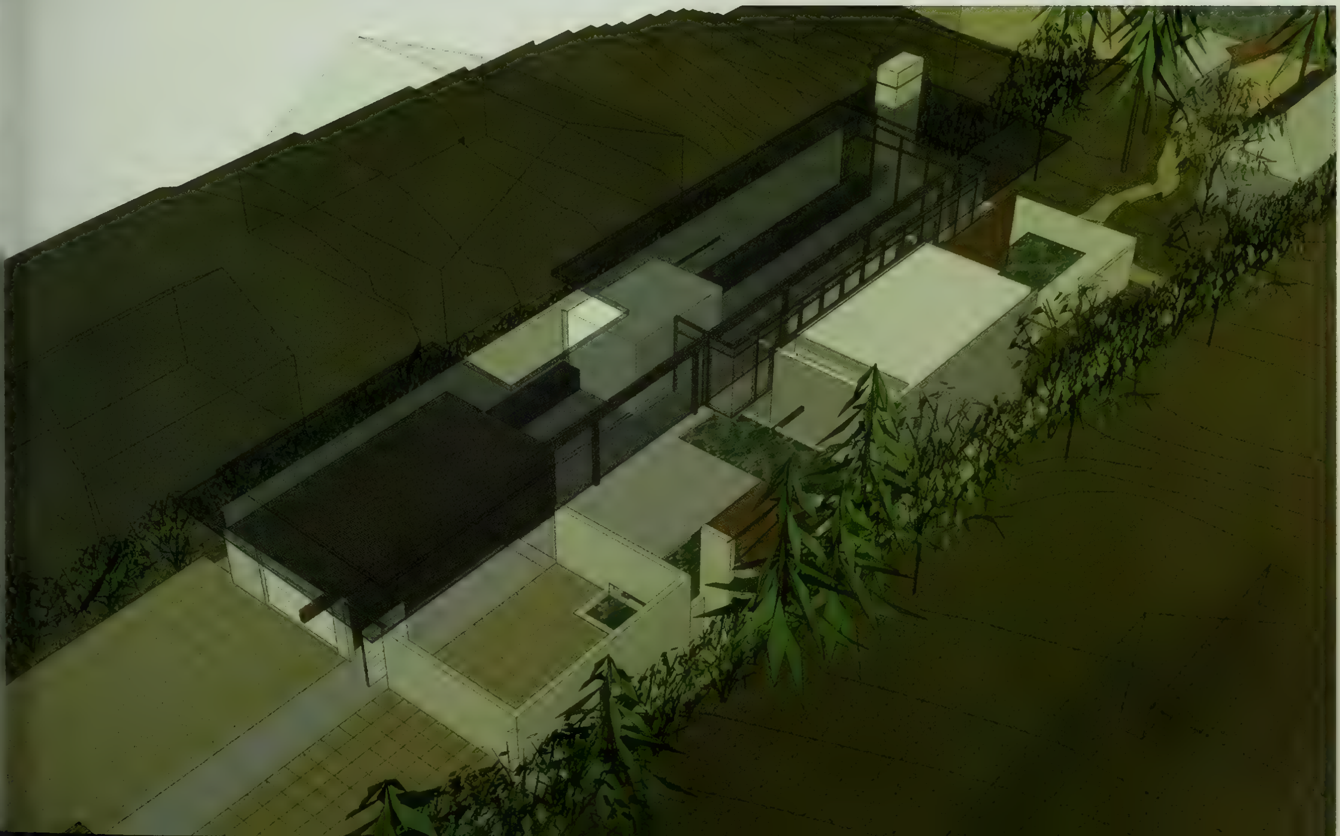
By Jane F. Kolleeny

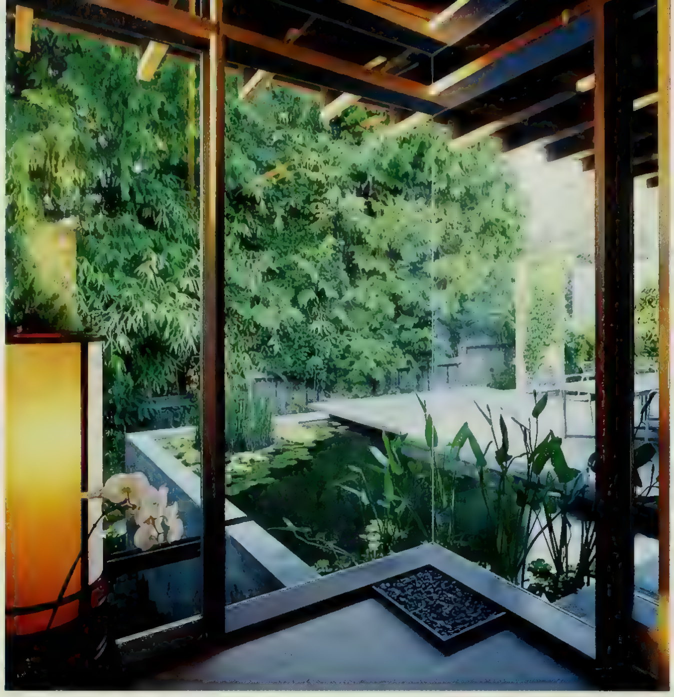
Isolated by water on three sides, West Seattle exists as both a peninsula and a state of mind. While animated by the bridges, roads, a ferries that bring it closer to downtown, it remains determine aloof and uncitylike. It is here that the beachfront community Fauntleroy emerged, developed at the turn of the last century as summer getaway. Fauntleroy rests on the eastern edge of Puget Sou offering panoramic views of Vashon Island, Blake Island, and the Kits Peninsula to the west. The white-capped Olympic Mountains in the d tance can be glimpsed from behind these bodies of land.

Here, architect George Suyama, FAIA, of the Seattle-based fi Suyama Peterson Deguchi Architects, created a home for himself and h wife, one that rests comfortably within an eclectic mix of suburb houses and beach bungalows arranged into rows of narrow rectilinear l aligned to the beach along the sound. "We don't produce very aggressi

Project: *Fauntleroy Residence, Seattle*
Architect: *Suyama Peterson Deguchi—George Suyama FAIA, partner in charge; David Derrer, Chris Haddad, Carl Mahaney, Kevin Miyamura, Matt Scholl, Jeff King, project team*
Engineer: *Swenson Say Faget (structural);*
Landscape: *Alchemie*
Lighting: *Brian Hood Lighting*
General contractor: *Crocker Construction*

In the entry courtyard, a dining area and deck sits next to and over the reflecting pond (opposite). Suyama reinforces the elongated house with a concrete bearing wall that begins at the front (left) and culminates at the back (below and rendering, bottom).

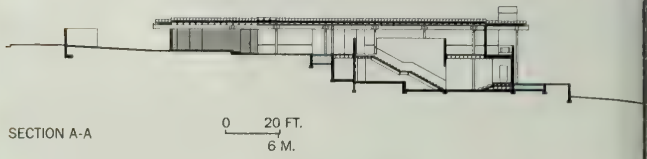


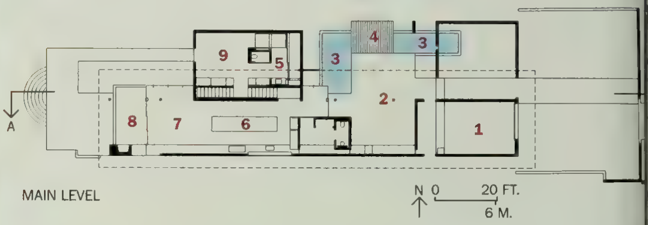


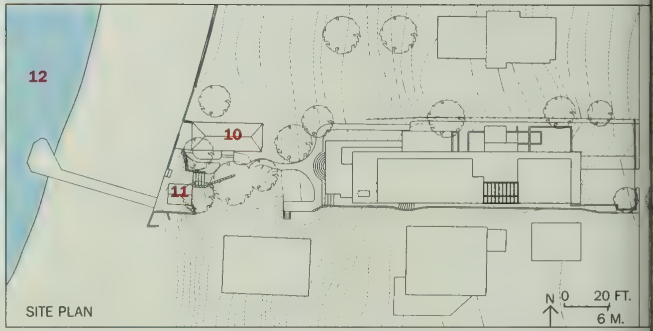
Visible from the entryway, a reflecting pond creates a place of repose (top). The master bath features a soaking tub, where a pond sits next to and outside a glass wall (above).

architecture in Seattle because the landscape is too beautiful, and the weather too benign," says Suyama. This couldn't be a more accurate description of the Fauntleroy house's inconspicuous street presence, which belies its interior—a serene, Minimalist sequence of spaces that references and opens gradually to the water at its back.

The 2,600-square-foot house features a main floor containing the key public areas: an entry courtyard, outdoor sitting room, kitchen/dining area, bath, living room, and porch. A downstairs landing houses a master bedroom and bath, while a library/office/den, bath, and storage reside on the level below. Outside, the backyard steps down to the beach where a dock juts out into water. A fisherman's shack built in the 1920s and a 1940s rustic cabin (now used for guests), both framed by a tall cluster of 100-yea old Douglas fir trees, share the property.





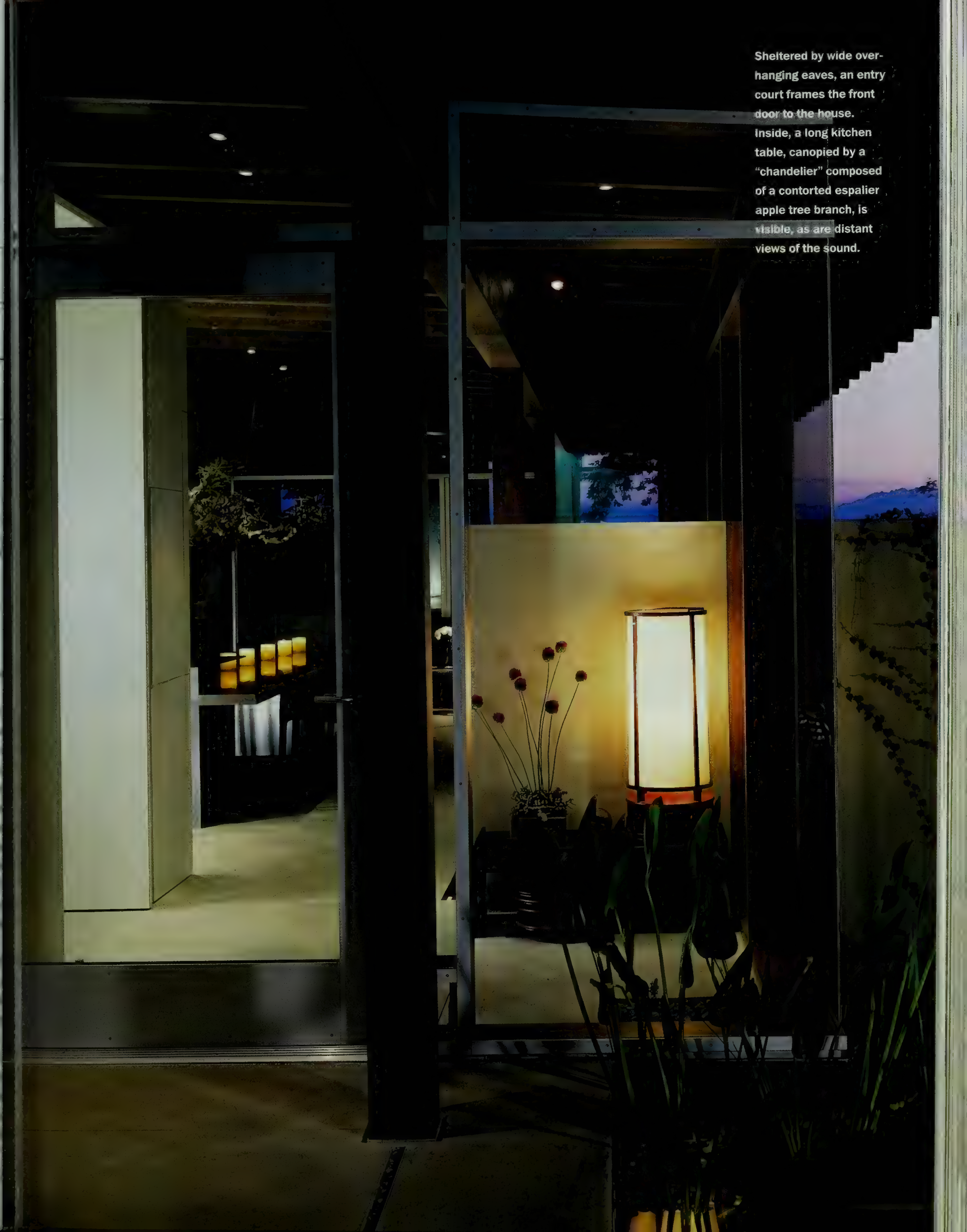


1. *Garage*
2. *Entry terrace*
3. *Reflecting pond*
4. *Deck*
5. *Bath*
6. *Dining/kitchen*
7. *Living room*
8. *Terrace*
9. *Bedroom*
10. *Guest cabin*
11. *Fisherman's shack*
12. *Puget Sound*

The house emerges in stages, from th street to the carport and through a wide, pivotin front door. An entry courtyard leads to an ou door sitting area where a water element begins. home to koi, reeds, and other water-growin plants, it continues throughout the house, meandering indoors and out—here a reflecting pon later narrowing into a stream, then widenin again into a pond. A continuous trickling soun contributes to the contemplative mood of th residence. The water terminates at the lower te race in the back of the house, but seems to restart farther on as Puget Soun "One begins with water and comes back to water," says Suyama.

The house's long, narrow footprint parallels hedges of trees on th south and north length of the site, providing abundant privacy. A black ste countertop that originates in the front outdoor room continues insid transformed into a kitchen countertop (composed of African black gran ite), and then extends into the living room as low-slung steel cabinets.

The architect contrasted such rectilinear elements, whic direct one's movement from front to back, with interior places for relaxing and settling into everyday activities. Drawing on distinctly Japanes forms, a multipurpose library/den/office and the master bath hide functional elements in closets and behind walls. Japanese antiques contra with Modern furniture to accent the quiet simplicity of the house. Th architect uses the principles of *wabi* (subdued austere beauty) and *sa*



Sheltered by wide overhanging eaves, an entry court frames the front door to the house. Inside, a long kitchen table, canopied by a "chandelier" composed of a contorted espalier apple tree branch, is visible, as are distant views of the sound.

A living room (bottom) framed by windows and a deck overlooks the backyard, providing views of Puget Sound and islands in the distance (top).

(rustic patina) to guide the design. "The idea of beauty in things that a
imperfect, impermanent, and incomplete, while modest and humb
contrasts with the architectural precision of the construction," explai
the architect.

Suyama worked in tandem with landscape architect Bru
Hinckley, of the Seattle-based firm Alchemie. Hinckley describes th
sequencing of outdoor and indoor places "like two improvisational ja
musicians riffing back and forth to create something richer than its indivi
ual parts." Bamboo groves cluster harmoniously near the entry, in t
backyard, and in gardens inset around the pond. On the periphery of t
carport, rusted-out steel piping is used as planters for equisedum, and m
grows through concrete pavers known as "grasscrete." Meanwhile, climbi
hydrangeas drape the front wall, and a contorted filbert tree covers a w
near the entry. Maximizing the benefits of indigenous growth and using t
limits of the site as an inspiration, Suyama's design fulfills his statement th
"in the Northwest, design is more about place and less about object." ■

Sources

Exterior stucco and wall coverings: *Dan Daniliucci*

Glazing: *Cardinal Glass Industries*

Wood doors: *Northstar Woodworks*

Custom cabinets: *Bellan Shopworks and Von Mertens Metalwork*

Lighting: *Translite; Artimede; Lutr*

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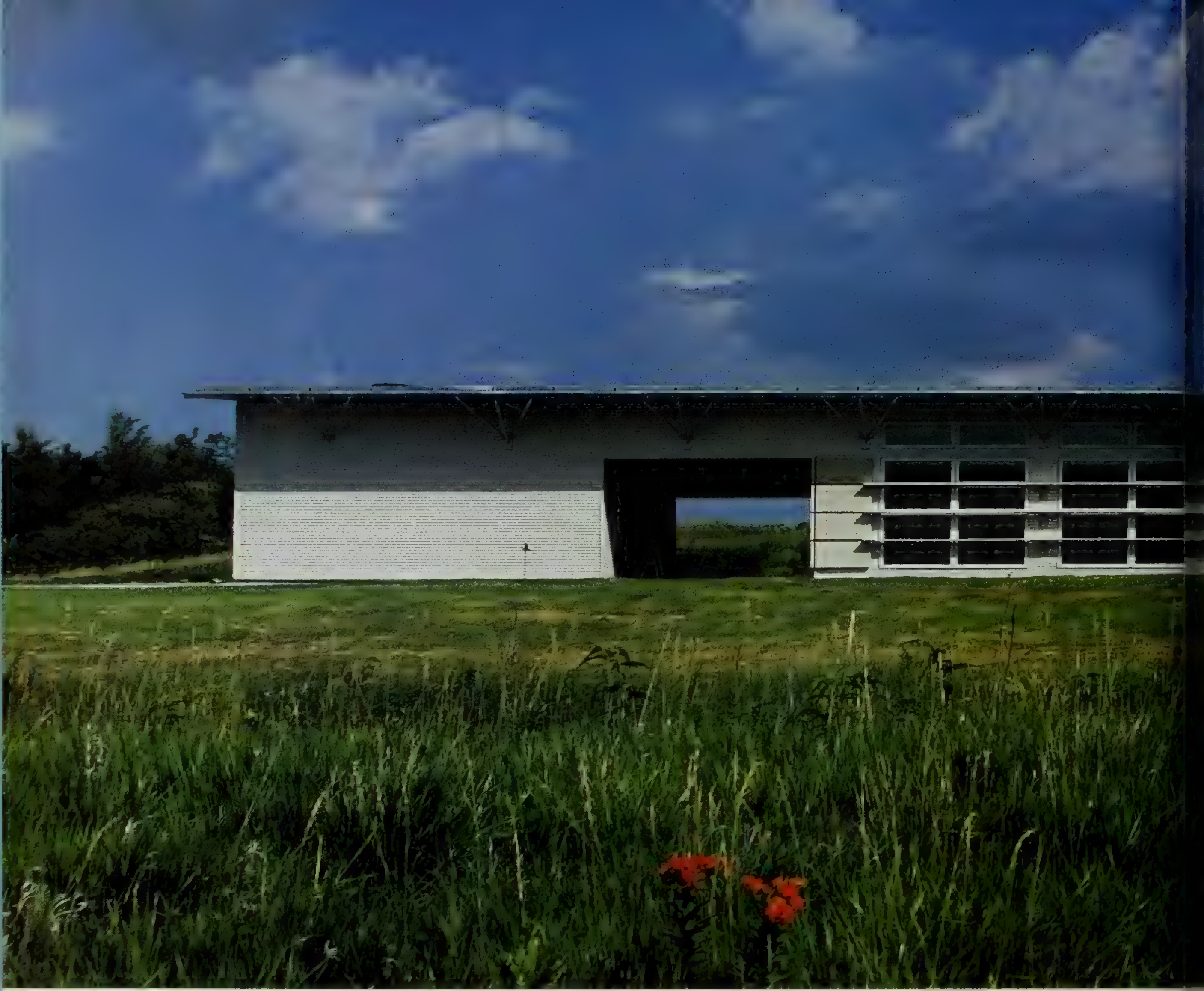
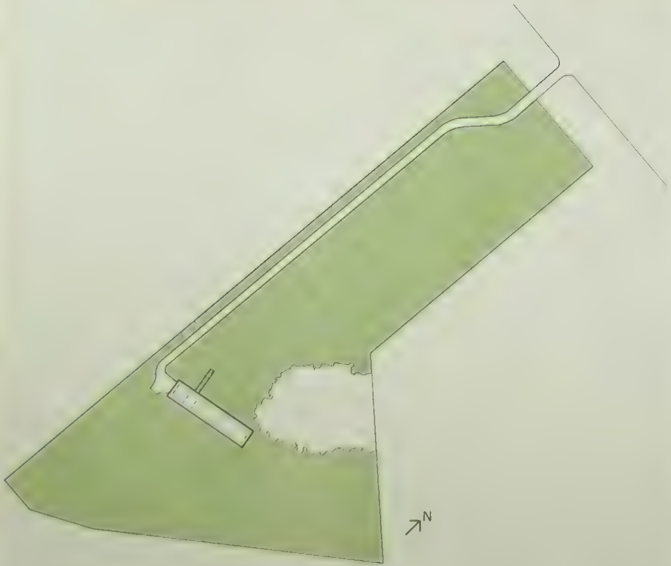




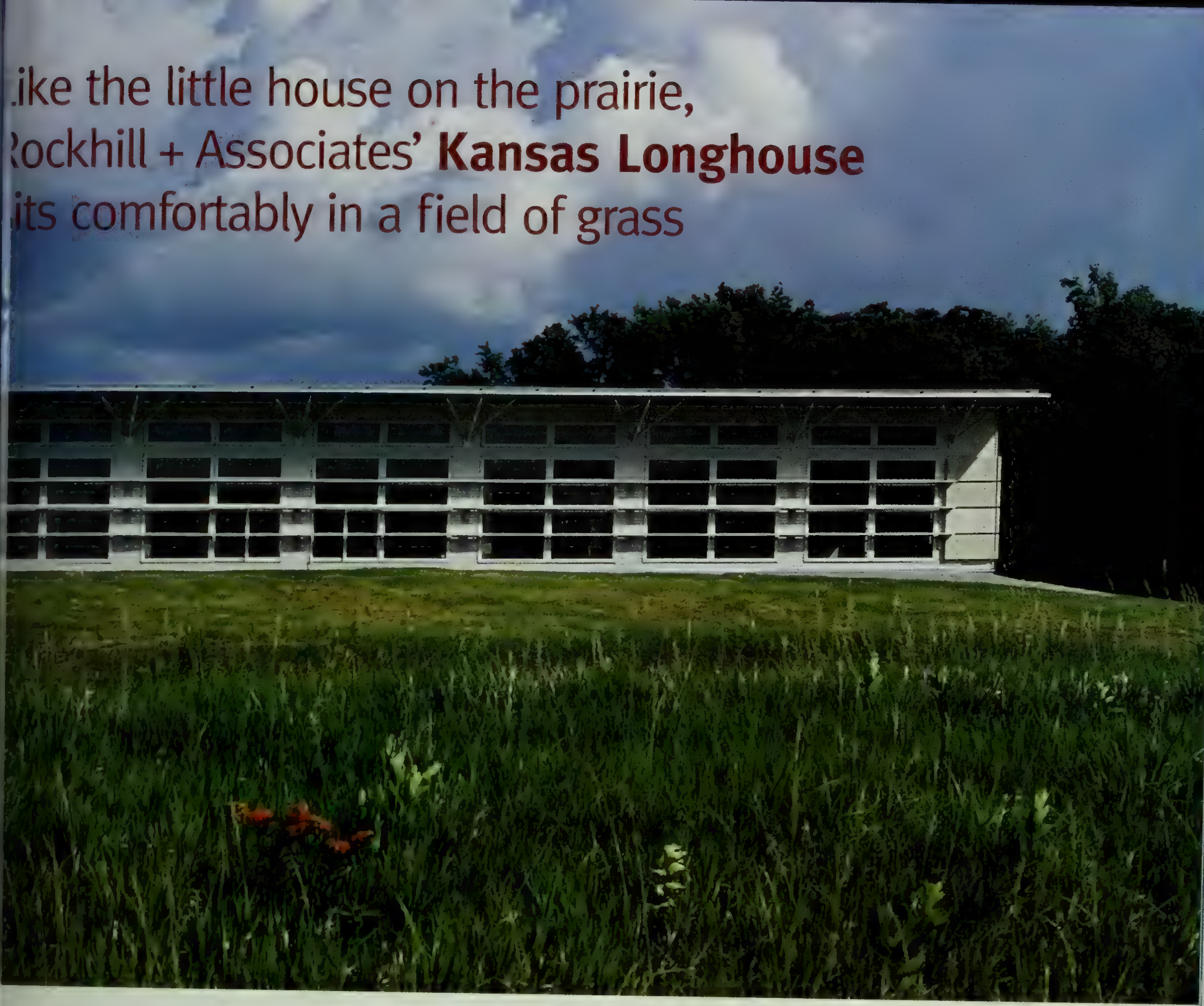
By Charles Linn, FAIA

A few years ago, one of Dan Rockhill's clients gave him an 8-acr lot with frontage on a busy county road west of Lawrence Kansas, in lieu of payment for some design and constructio work. Rockhill explains, "We were cash poor, so we decided t build a spec house on it and sell it. When we started, we were enamore with the notion of literally coming down and cutting the prairie, moving i aside, putting a house on the exposed ground, and replanting the prairi back on top." The idea developed by Rockhill and his colleague David Sai works: The Kansas Longhouse's low-slope green roof has been so successfully colonized by the native prairie grasses that on approach it is nearl invisible. Visitors walking up the long driveway toward it ought to b warned before they embark, "Just keep going, it's back there."

The structure's major axis runs roughly east–west. It is place parallel to and at the base of a short, sharp slope. Its south-facing wal of windows—which extends the entire length of the house itself—overlooks wide fields of brome grass, soybeans, and a distant tree-covere ridge. Orienting the building toward this view also allows the coolin south breezes to flow across the short axis of the house in summe when the windows are shielded by shallow light shelves. In winter, sun,

PHOTOGRAPHY: © DAN ROCKHILL

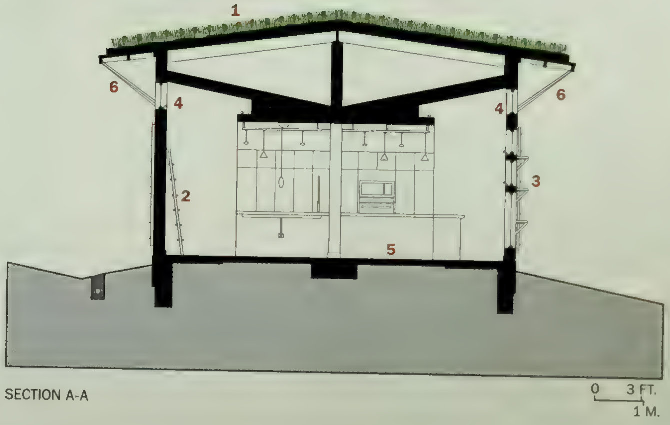
ike the little house on the prairie, ockhill + Associates' **Kansas Longhouse** its comfortably in a field of grass



Glazing on the south is shaded by light shelves (above), which also reflect light onto the sloped ceiling; operable windows allow cross ventilation. Heat is provided by a radiant floor.

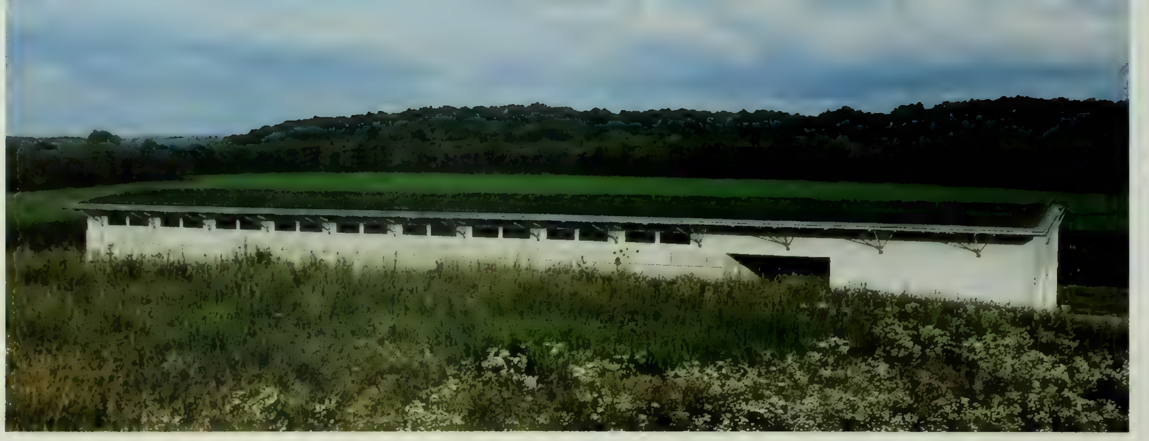
ne warms the house's concrete floor, and : slope behind the building shields it from : brutal north winds of Kansas. The plan, ganized on a pure, 12-by-12-foot structural d, could not be much more straightfor- rd. The garage is separated from the house a breezeway. One enters through the open ng, dining, and kitchen area; beyond this, ices become increasingly more private as master bedroom at the far end of the house is approached.

The residence's primary circulation path runs along the south ndow-wall, leading past two bathrooms, two bedroom/study spaces, and to the master bedroom. Vanities for each bathroom are stationed in the rridor so users can enjoy the view, although they can be made private by ling closed pocket doors on each side. A second corridor runs along the ide of the north wall of the house, allowing access to utility rooms, a nado shelter, and the other end of the bedroom/study spaces. The out- e wall of the corridor is lined with storage cabinets. The two lroom/study spaces are separated from the corridors by pivoting doors her than walls. When windows are open on both sides of the house here

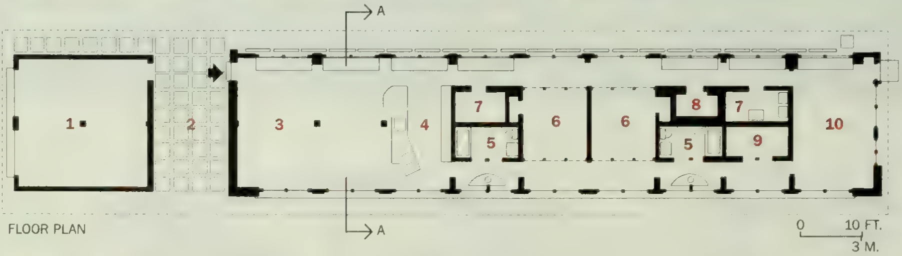


SECTION A-A

1. *Sod roof*
2. *Ladder to clerestory windows*
3. *Light shelves*
4. *Operable windows*
5. *Radiant heating*
6. *Overhangs supported by custom brackets*



Turfgrass sod from a
local farm was rolled
over the EPDM green-
roof system, where
native grasses now
thrive (top). Outside,
the house features a
wood frame sheathed
in metal with a yellow
finish. Over the garage
the metal is corrugate
and left exposed; else
where, the metal is fla
and limestone slabs
are bolted to metal ba
anchored to the wood
frame (near left, on th
left). Rockhill's studio
can afford to splurge
details, because they
do nearly all the con-
struction themselves,
including custom fabri
cation of cabinets and
vanities (far left) and
light shelves.



FLOOR PLAN

1. *Garage*
2. *Breezeway*
3. *Living/dining*
4. *Kitchen*
5. *Bath*
6. *Bedroom/study*
7. *Utility rooms*
8. *Tornado shelter*
9. *Closet*
10. *Master bedroom*

(and elsewhere), and the doors at each end of these rooms are pivoted open, cool, refreshing breezes can freely circulate throughout the entire house.

Rockhill notes that compared to other firms, his is a hard-core, design-build operation. They subcontract out very little work, and take on very technically challenging tasks, such as the installation of the green roof and radiant-floor heating system used in this project. The firm's builders are particularly gifted at fabrication, says Rockhill, "otherwise you really couldn't afford to do a spec house like this." Although the house makes rather pointed references to the region's brooder-house forms, people st
see it as Modernistic. "You can't help but be a bit nervous in this neck of t
woods, if you build something that's spec that's the slightest bit differe
We advertised it for three full months and no one called." In the end, t
first person who viewed the house bought it. But now he's considering se
ing. "He's a highly social being," Rockhill says. "Some people can't help b
be a little surprised that out here it's quiet all the time." ■

Project: *Kansas Longhouse, Lawrence, Kansas*

Architect: *Rockhill + Associates—Dan Rockhill and David Sain*

Sources

Windows and doors: *Jeld-Wen*

Roofing: *Genflex*

Cabinets and hardware: *IKEA*

Solid surfacing: *Formica*

Radiant Floors: *Midwest Radiant Heat*

Sinks: *Blanco*

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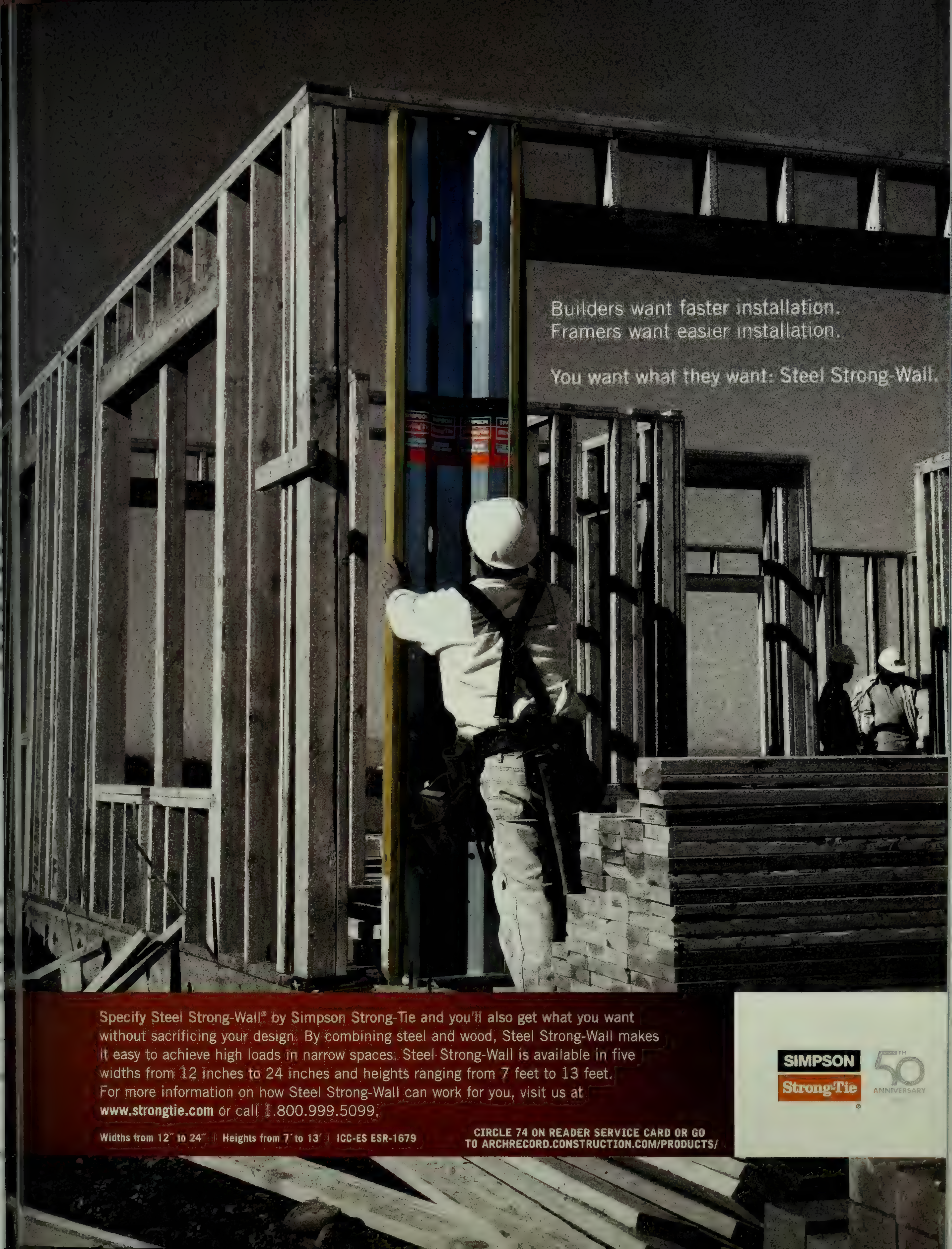
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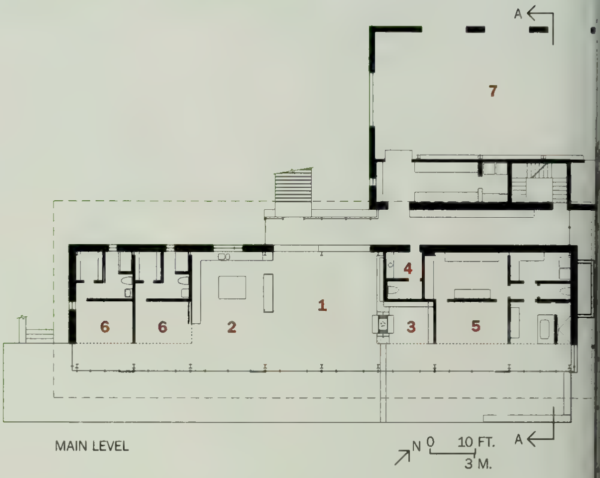
Along a high bank of the Rattlesnake Creek, Public's **Rankin Creek House** takes its cue from the water's flowing form



1. *Living room*
2. *Kitchen*
3. *Den*
4. *Bath*
5. *Master suite*
6. *Child's room/b*
7. *Garage*

By Beth Broome

On an old glacial lake bed, Missoula, home to the University of Montana, feels like a dusty outpost with a college town vibe. Surrounded by national forests and wilderness areas, with Glacier National Park a few hours to the north and Yellowstone to the southeast, the city attracts people who like to spend their time outdoors.

The area's natural beauty was certainly a main draw for Matt and Marian Maxwell, California and Idaho natives, respectively, who built Rankin Creek House atop the steep-wooded bank of Rattlesnake Creek. However, as a working couple with two young children and the demands of a heart surgeon's schedule, the owners do not get out as much as they would like to. When the Maxwells hired San Diego architect James Brown of the firm Public to create their full-time residence, they told him they wanted a Minimalist home with a relatively small footprint that would fit into its urban forest setting and bring the outdoors in. The house they envisioned would serve as an observation deck for taking in the scenery, while at the same time function as a "living" home that responded to their needs as a growing family.

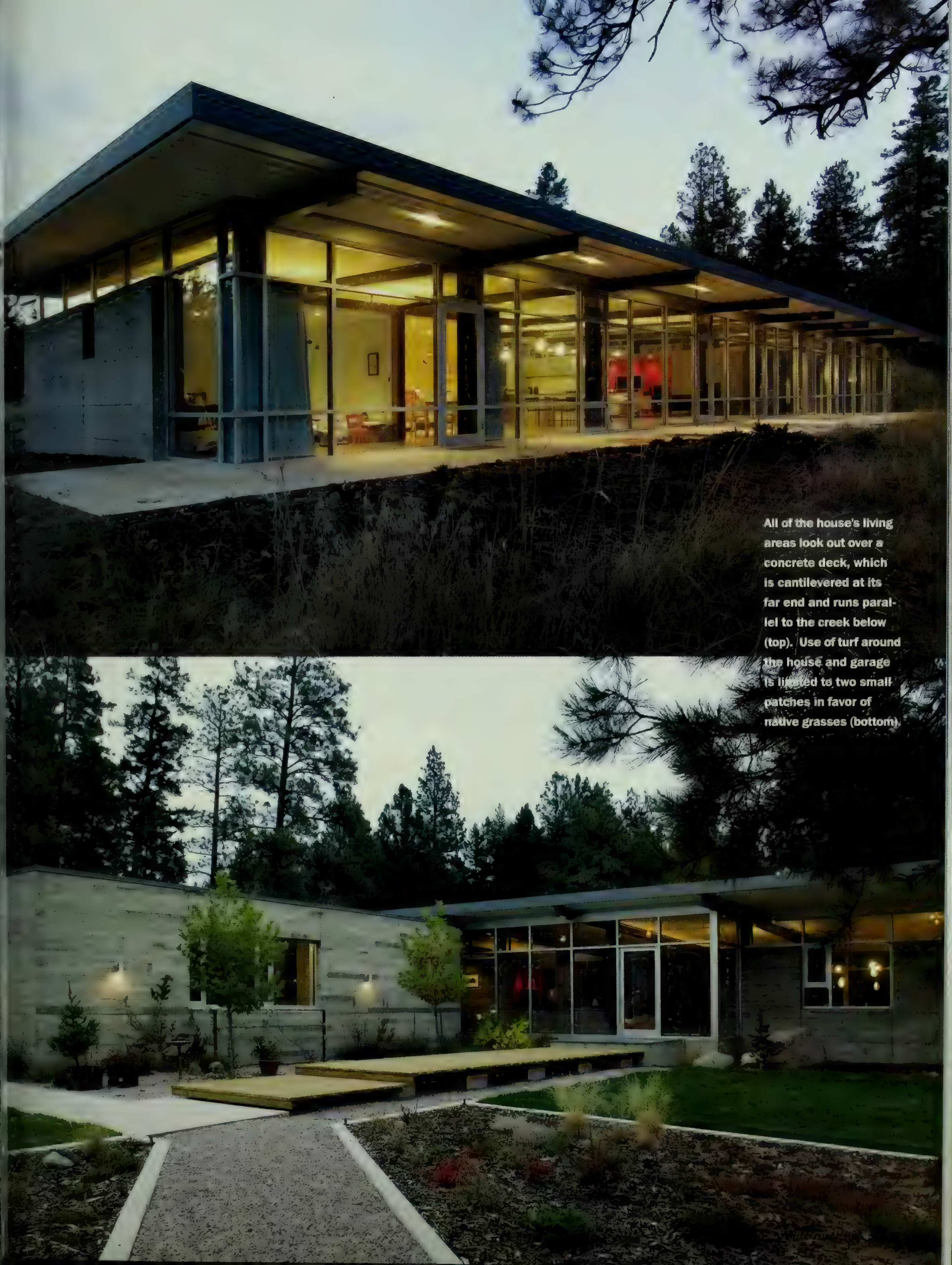
When Brown first visited the site, he was captivated, too. A vision immediately came to him: a line of straight-backed chairs arranged in a row along the edge of the high creek bank. "It felt like you could sit in one of these chairs and be in a separate universe, though others might be with you contemplating the setting," says the architect. He took this simple idea and rigorously implemented it, allowing the vision to guide his design, which over the course of two years and with close client involvement, went through 13 iterations.

Ponderosa pines, black cottonwood, and Rocky Mountain maple dot the 7-acre lot, which sits on the edge of town, past a grouping of ranch and split-level homes. A winding drive brings visitors through blue bunch wheat grass, Idaho fescue, and other native species the Maxwells have planted to restore the natural grasslands that had been damaged by grazing horses.

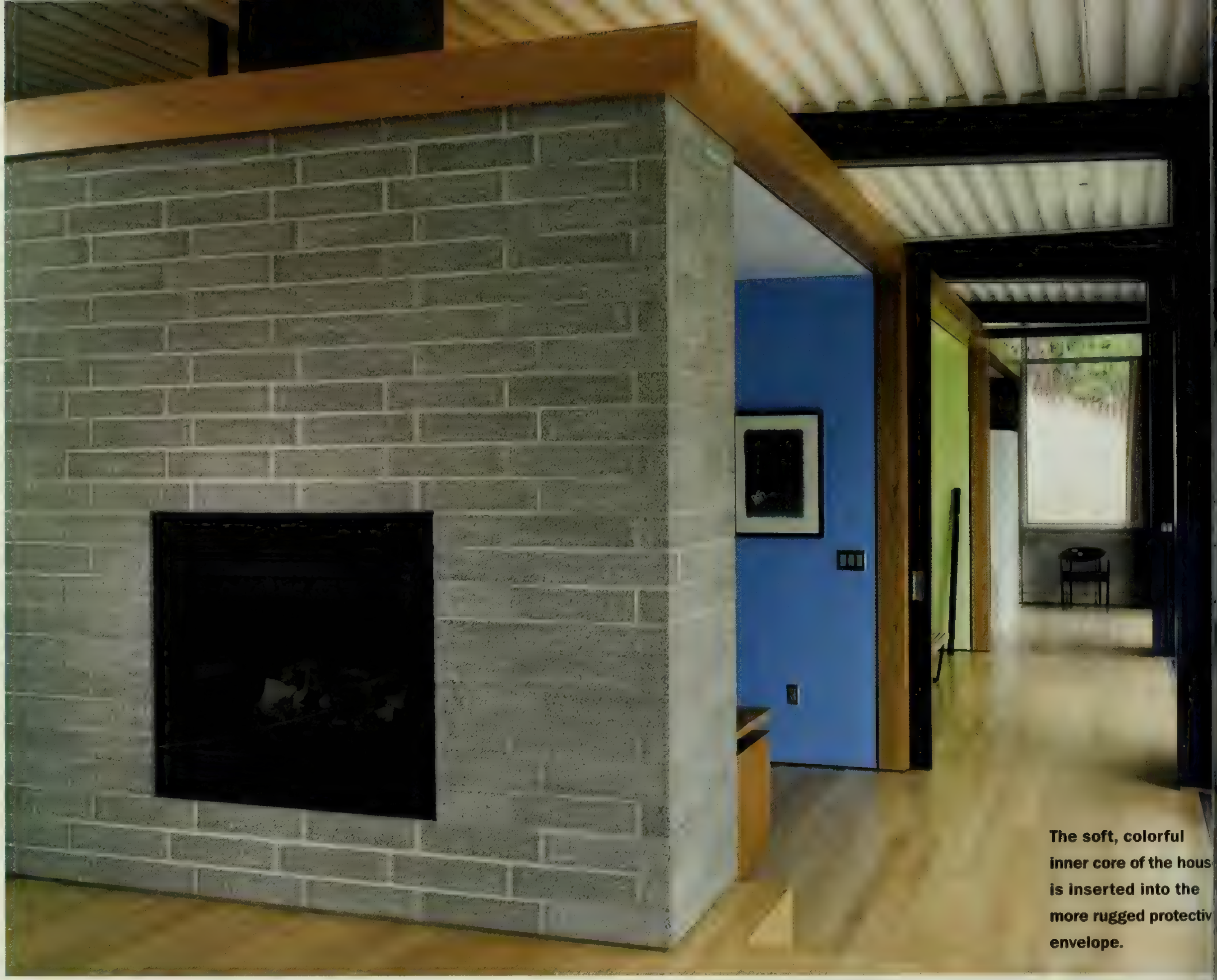
Shaped by that image of a line of chairs, the footprint evolved as a long, narrow rectangle, following the creek's path. A large garage connected to the house by a wide, gallerylike hall breaks from t linearity of the residence, but plays secondary role in the plan. A durab shell of board-formed concrete shiel the house from the elements, inclu ing potential wildfires, while giving t hard exterior a soft, textural quali The austere envelope also protects t jewel-like core—an "insert" of soft and brightly colored walls that defi the living quarters. Like the commun yet private environment Brown env sioned, the interior spaces rela individually to the outdoors. T house can either be compartment ized by closing large steel sliding wal or, with the partitions pushed in their pockets, work as a single volum

Aluminum-framed glazing, with some operable windows a four doors, forms the rear elevation, which leads onto a concrete de partially cantilevered over the steep drop to the water below. Thou

Project: *Rankin Creek House, Missoula, Montana*
Architect: *Public—James Brown and James Gates, design partners; Ruediger Thierhoff, project manager; Steve Rosenstein, digital modeling*
Landscape: *Garden City Florascaping*
Engineer: *Valley Electric*
General contractor: *Gordon Construction*



All of the house's living areas look out over a concrete deck, which is cantilevered at its far end and runs parallel to the creek below (top). Use of turf around the house and garage is limited to two small patches in favor of native grasses (bottom).

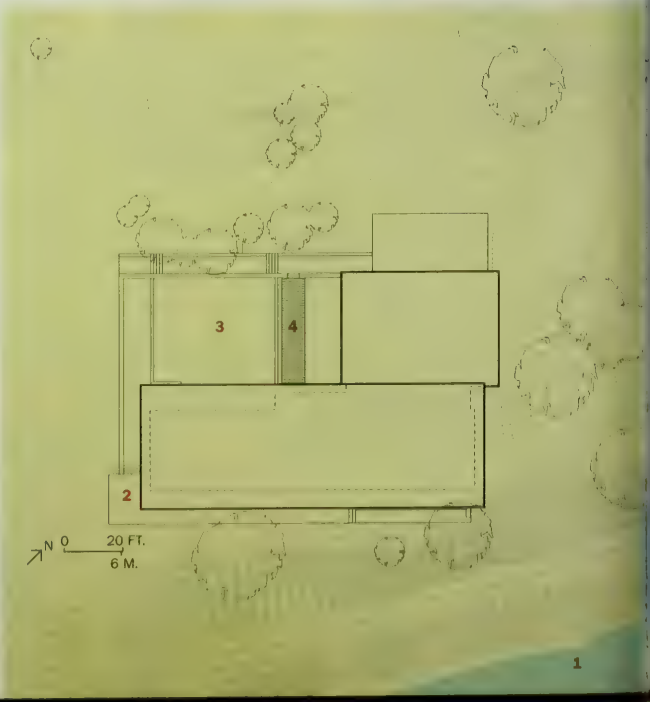


The soft, colorful inner core of the hous is inserted into the more rugged protectiv envelope.

Missoula's climate is temperate by Montana standards, it is by no means mild. Brown specified triple-glazed, argon-filled glass throughout and built interior/exterior walls with two 8-inch-wide concrete slabs sandwiching a layer of insulation. Clerestory windows wrap the entire house, making the metal-pan roof, supported by exposed steel beams and columns, appear to float, and reducing the need for artificial lighting. The Maxwells eschewed air-conditioning, opting instead for cross ventilation. On a late summer afternoon, as the two children wandered in and out at will, a breeze kept the house comfortable and carried in the sounds of the babbling creek and rustling pine branches outside.

The material palette lends an honest quality to the 3,600-square-foot house (which includes a finished basement level), and establishes an intimate relationship between resident and residence. Lines between the inside and outdoors are blurred by the continuation of elements such as the steel beams and board-formed concrete from interior to exterior. Brown heightened the connection of the built and natural environments by orchestrating a series of tactile and auditory experiences—starting with the sound of footsteps on gravel, then on concrete slab, Nyotah decking, and finally Pennsylvania bluestone (well adapted to

1. *Rattlesnake Creek*
2. *Deck*
3. *Yard*
4. *Walkway*



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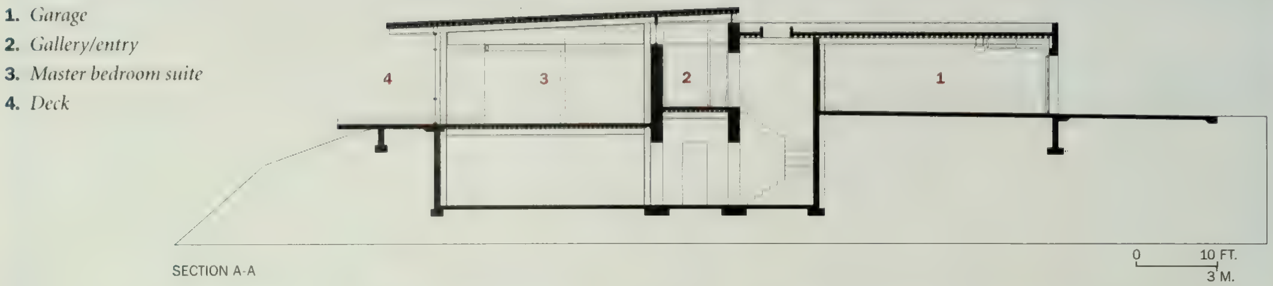

SECTION A-A

Exterior materials are carried into the interior, in the gallery (right and far right), and in the living area (below).

the freeze-thaw cycle), which extends into the front gallery and down a step, where it meets swaths of quarter-sawn white oak. It was a challenge finding local builders who could handle traditionally commercial materials in a residential project, but Brown eventually brought in a commercial contractor, Gordon Construction. Working from California, Brown, who made just two site visits during construction, relied heavily on the contractor's craftsmanship and input.

While achieving a delicate balancing act of simultaneously providing shelter from the environment while admitting it in, the house does not get caught up with itself as an object on the landscape. Rankin Creek House, which is named for Matt Maxwell's paternal grandmother, is very much for and about the family that lives in it. When the concrete was setting on the front walk, and again on the back deck, the couple's young daughter cast imprints of her tiny hands and feet, making her indelible mark, along with the rest of her family, on the house's legacy. ■

Sources
Kitchen: *Polyform*
Locksets: *Schlage*
Iron fabricators: *Iron Horse*
Flooring: *Superior Hardwoods*
Plumbing fixtures: *Hansgrohe*

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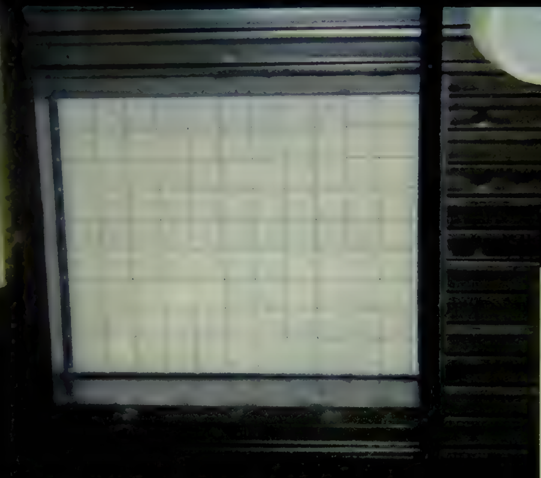

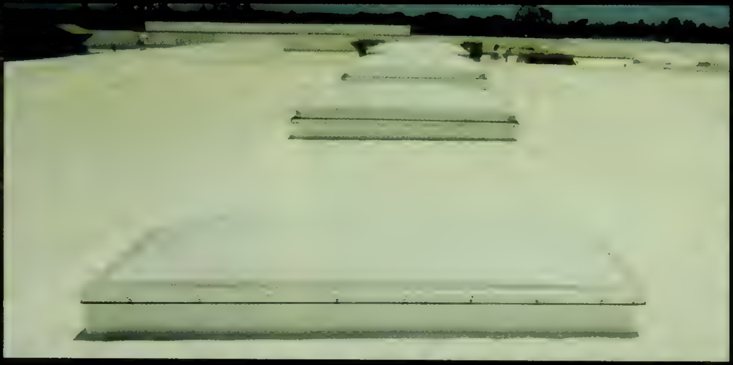

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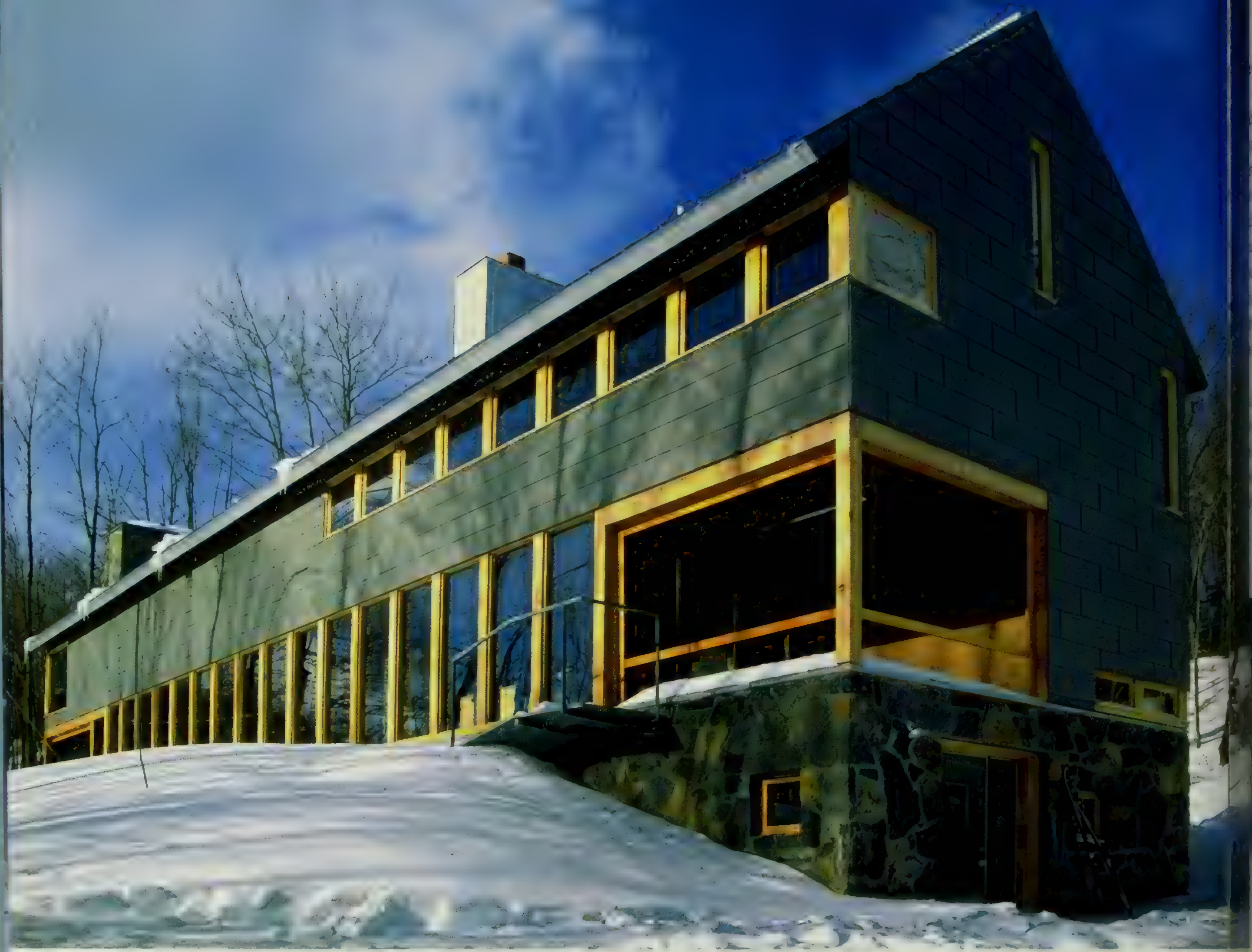


Saia Barbarese Topouzanov Architectes' **Maison Goulet** recalls the primal shape of the farmhouse

By Rhys Phillips

In their infancy, the Laurentian Mountains north of Montreal would have dwarfed even Mount Everest. But several billion years of persistent erosion has reduced most of them to modest if rugged hills, cloaked in a thick forest mantel and curling around countless small lakes. Here, 60 miles north of Montreal, near the village of Sainte-Marquerite-du-Lac-Masson, urban dwellers have found a four-seasons playground. As a result, overdevelopment is intruding on the once raw landscape.

In spite of this, Montreal art historian Marlène Goulet found and purchased an unspoiled 80-acre ridge that curves around the bay of one of the lakes—Lac Grenier—and rises sharply 200 feet to its crown. A rudimentary cottage was the only existing structure on the property, bu on marshy flatland next to the motorboat-free lake. Initially, Goulet, h architect-husband, Mario Saia, and their three children made do with t rustic facility, albeit with a number of rambling but modestly scal additions. But when the couple decided they wanted a comfortable ye round retreat complete with a studio/office, Saia got involved. I embarked on the task of creating a home that would combine his desi

Rhys Phillips, a writer based in Ottawa Canada, specializes on architecture and urban design.

Project: *Maison Goulet, Sainte-Marguerite-du-Lac-Masson, Canada*
Architect: *Saia Barbarese Topouzanov Architectes—Mario Saia, principal; Marc Pape, team*
Engineer: *Saia Deslauriers Kadanoff Leconte Brisebois Blais*
Landscape: *Claude Cormier Architectes Paysagistes*
General contractor: *Michel Riopel Construction et Rénovation*

eas with the family's lifestyle.

They retained the existing compound for summer use by their ildren and grandchildren, but wished to refrain from intruding further the lake's delicate shoreline. As a result, a long, narrow shelf almost a arter of a mile up the slope from the lake became home to the new 800-square-foot building, with a footprint measuring 18-by-85 feet, cked below two side-by-side rock faces. "We built on a plateau, in the rdant forest between the erratic stones," describes Saia. The two-story sidence provides a first floor with screened porches at either end tween a long, double-height living/dining area and a well-equipped tchen. Two bedrooms above the kitchen and a generous studio on the st end are separated by the house's double-height space.

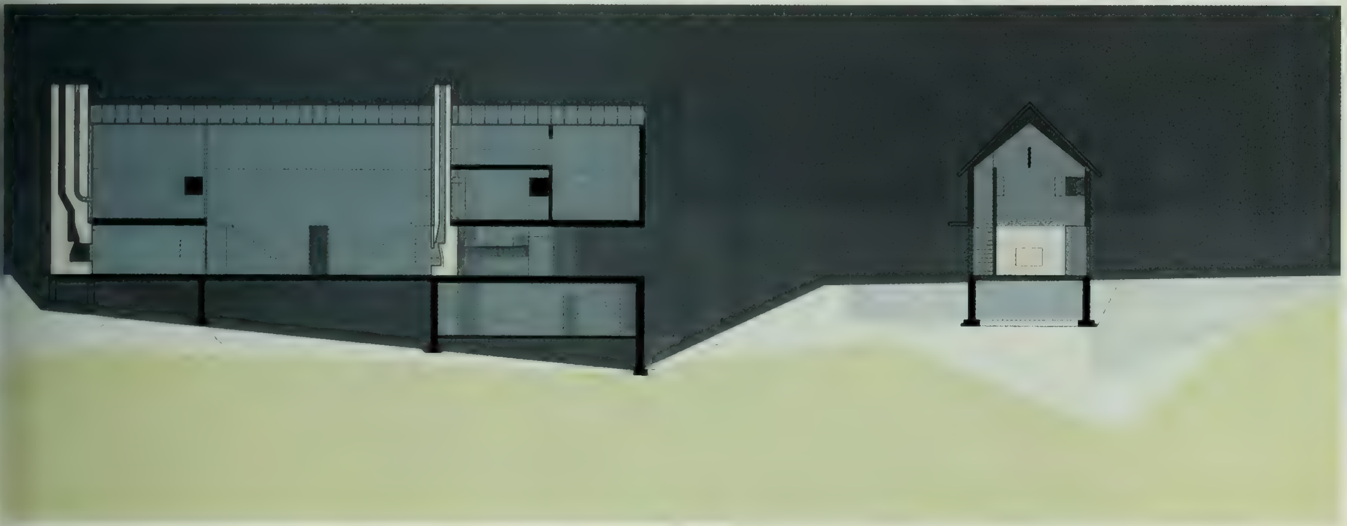
The narrowness of the plateau suggested a very long, thin plan. so, the site's southern exposure, shaded by deciduous trees in summer t open most of the day to winter sun, played a role. "The idea was to etch out the summer view of the forest and the winter panorama of e lake to be available to every space in the house," said Saia, "while tablishing strong continuity inside and outside."

The residence's simple rectangular volume with a gabled roof is intended to invoke the "familiarity of shelter through an archetypal form," while at the same time "reflecting simple geometry and volume, purified of superfluous details," says the architect. Added to this are the house's zinc cladding and corrugated-metal roof, unsentimental vernacular references to traditional Quebec tin sheds.

The steel-reinforced, wood-frame house sits on a fieldstone foundation wrapped mostly around a 4-foot-deep gravel base. At the house's west end, this solid base is replaced by a basement mudroom. With this mudroom extruded from the slope and also clad in stone, the foundation suggests a huge, partly submerged rock. Saia's intent was to present the house rooted to the landscape as if built on a found-in-place but sliced-off stone plinth.

THE LAKESIDE FACADE FEATURES A SYMMETRICAL ROW OF WINDOWS THAT REACH FROM THE FLOOR TO THE CEILING.

On the ground floor, two exterior rooms, enclosed with full-height sliding screens against the area's ravenous mosquitoes, illustrate



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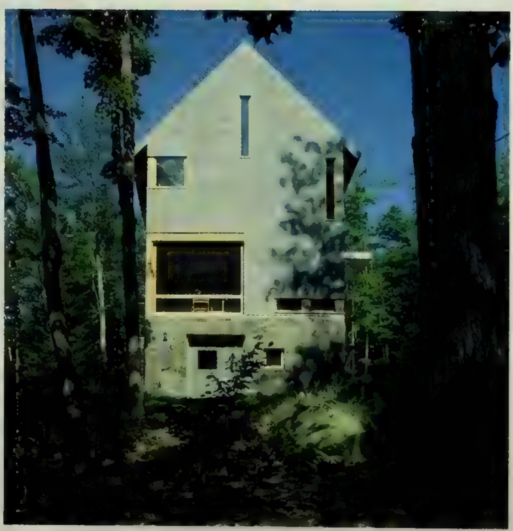
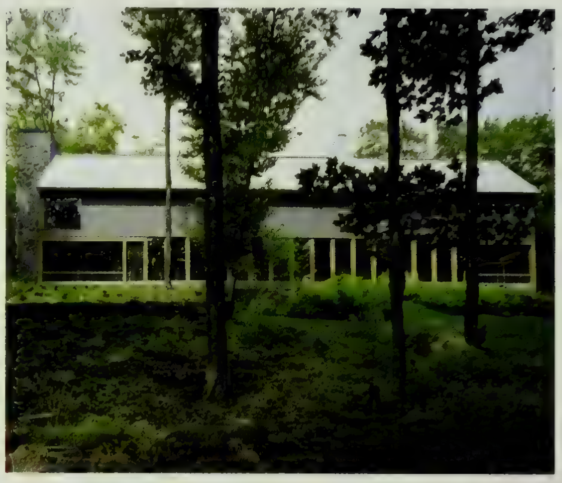
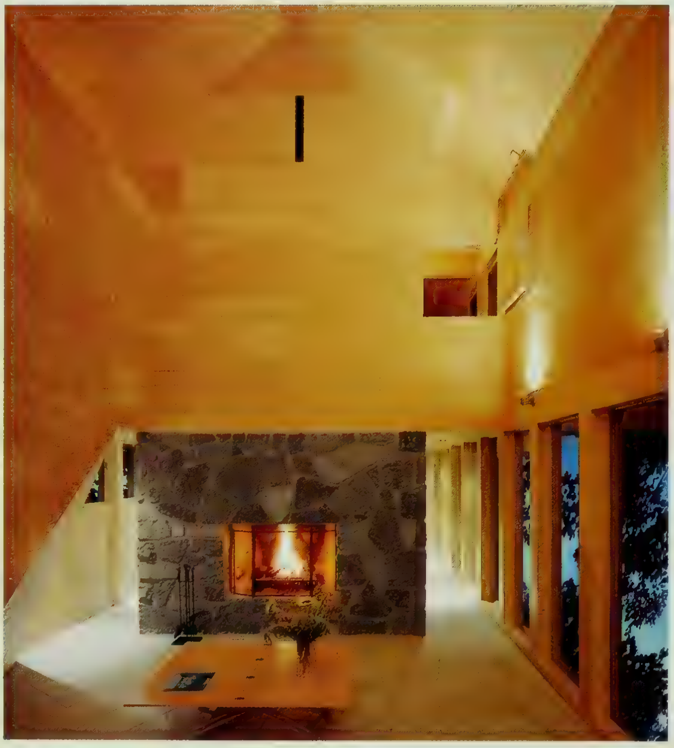


e simple, barnlike m of the house, with two large chimneys d sloped metal roof, esents a harmonious nd of vernacular d Modern design. e ground floor of the uth-facing side is ly glazed. A field- ne foundation and droom roots the ilding to the land.

On the lake-facing elevation, the ground floor opens to the outside with floor-to-ceiling glazing and screened porches on either end (right). Inside, walls and ceilings, clad in perfectly matched sheets of plywood, flow into one another (below two).



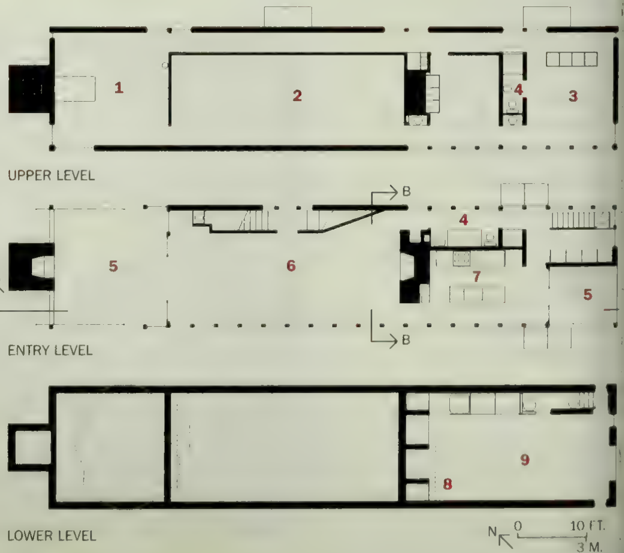


how the design blurs inside and out. A large porch stretches across the full width of the west end, and a smaller half-width porch cut out of the area under the second-story master bedroom provides an outdoor room on the southeast corner. A massive stone fireplace and chimney on the west end both anchors the double-height space and serves as a structural support for the second floor.

In plan, the first level revolves around a central great room, an elongated, sculptural space rising up to the roof peak and broken only by the slimmest of metal tie-rods. Folding glass doors open to allow the complete dissolution of the west wall during warm weather. A second, totemic stone hearth centers the great room's east end with passage along the south facade into the kitchen. In turn, folding glass doors again integrate the kitchen with the smaller, southeast-facing "breakfast" porch.

Along the entire first level, the lakeside facade consists of a sym-

1. *Studio/office*
2. *Bedroom*
3. *Master bedroom*
4. *Bath*
5. *Porch*
6. *Living room*
7. *Kitchen*
8. *Studio*
9. *Storage*



Achieving the Perfect Harmony
Between Beauty and Performance

Photograph courtesy of the Western Pennsylvania Conservancy. Fallingwater is located in Mill Run, PA. 724-329-8501.

When Western Pennsylvania Conservancy embarked on a comprehensive restoration of Frank Lloyd Wright's Fallingwater, they were looking for a coating solution that would provide harmony between beauty and performance. The paint system developed by Pittsburgh® Paints balances the strict aesthetic, functional and environmental requirements of the preservation project. No compromise. The interior involved a three-part system: vapor barrier, primer and Pittsburgh Paints Pure Performance®, a low odor, zero VOC premium latex paint. With antimicrobials that resist mold and mildew growth, it is the first premium paint to earn Green Seal Class A certification. For the exterior, the Fallingwater engineering team tested more than 118 samples before selecting Pittsburgh Paints Timeless®.

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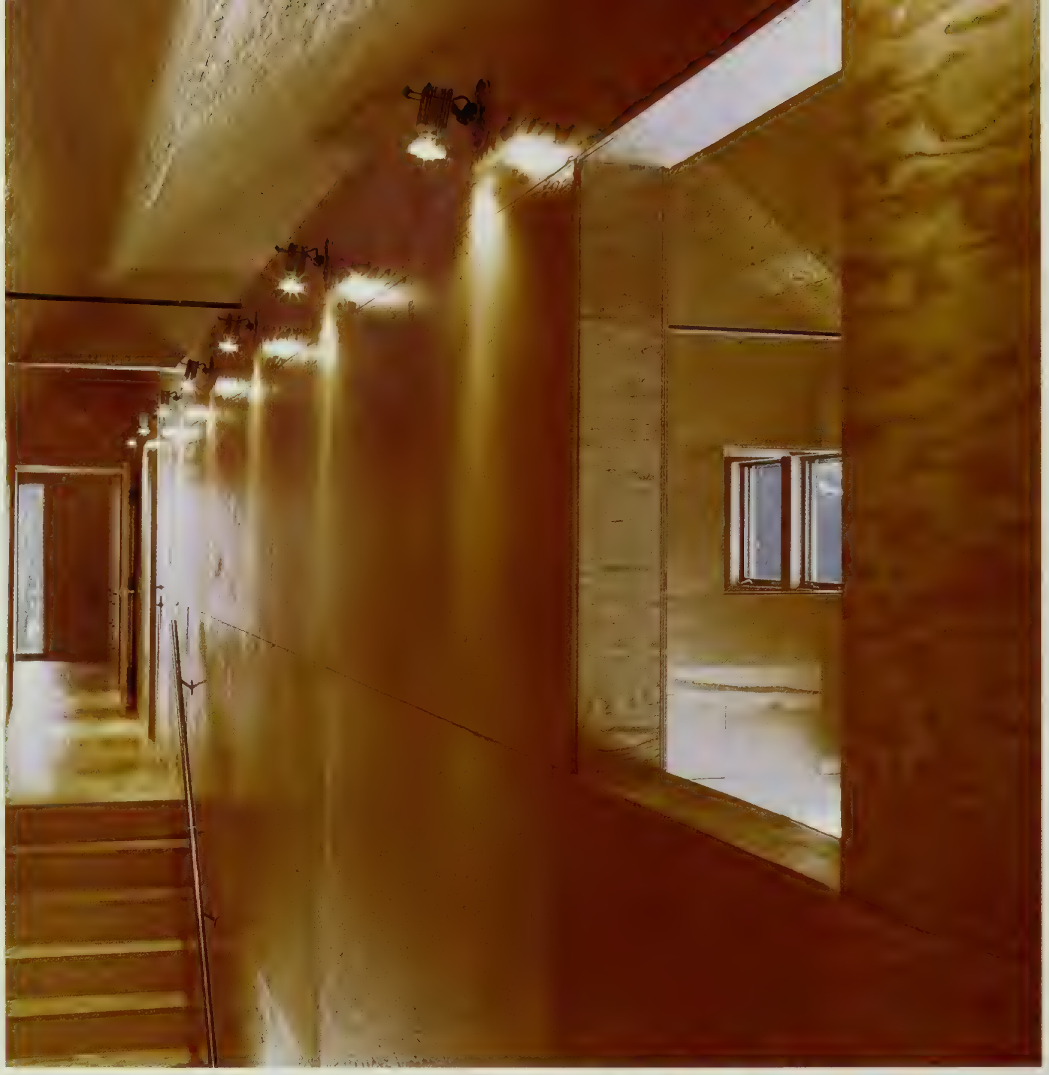

The plywood inner lining of the house imparts a warm, log-cabinlike quality (left). The hard outer shell addresses the semi-wild landscape (below), creating a compelling contrast with the interior.

metrical row of windows that reach from the floor to the height of the first level and visually open the narrow great room and kitchen to the forest slope. As it is the house's relatively opaque rear elevation that is first approached, this transparency is not immediately evident. But upon entering, the house's openness is instantly apparent, framed between two face-to-face enclosed stairs that ascend on either side of the entry. The right stair leads up to the studio over the west porch, while the left climbs to the bedrooms.

THE FIRST LEVEL REVOLVES AROUND A CENTRAL GREAT ROOM, A LONG, SCULPTURAL SPACE RISING UP TO THE ROOF.

The interiors are clad with a continuous membrane of richly grained British Columbian fir plywood, selected to be knot-free and sealed with a water-based varnish. "These inexpensive panels," says Saia, "are positioned horizontally, juxtaposed one beside the other in continuity, without moldings, without framing, and simply defined by openings." The couple selected the journeyman fir because they wanted a rustic, unsophisticated environment. Yet when sculpted with such unadorned finesse and countered with the rough-textured stone fireplaces and gray limestone floors, the effect is more sumptuous than humble. ■

Sources
Roofing: *Ideal Revêtement*
Interior wood paneling: *Good Fellow*
Zinc cladding: *VM Zinc*
Bath: *Kohler/Porcher*
Hardware: *Sargent*
Lighting: *Novus*
Cabinet hardware: *Häfele*

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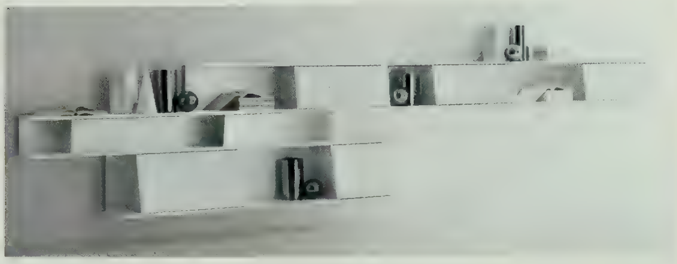
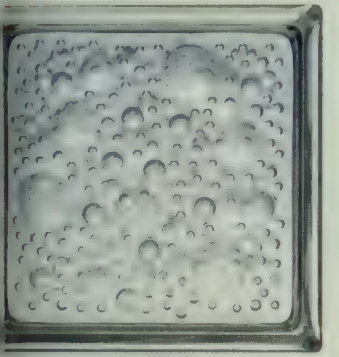
in on the market, and are heat-resistant, waterproof, and food-safe. Craft-Art Wood
untertops, Atlanta. www.craft-art.com **CIRCLE 233**



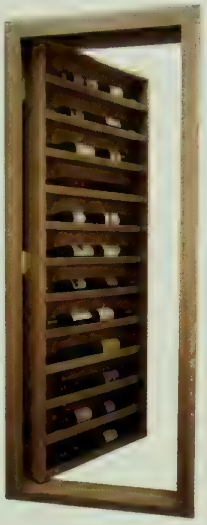
▲ Floating bookcase

The Shift bookshelf was designed by Patricia Urquiola for B&B Italia. Hanging and overlapping, bracket-shaped elements of different lengths can be creatively staggered to form wall-hung storage/bookcases. A sliding track is available either in varnished or unvarnished aluminum to create a contrasting or monochromatic effect. The doors, panels, and back of the unit are available in either a glossy or matte finish. B&B Italia, New York City. www.bebitalia.it **CIRCLE 234**



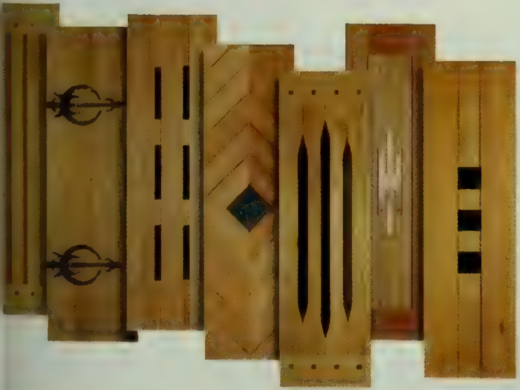
◄ Bubbly block

The new SeaScapes glass block pattern from Pittsburgh Corning features a grouping of three-dimensional circles of various sizes that appear to float inside the block. Similar to other Pittsburgh Corning glass block designs, SeaScapes is available in a 8" x 8" x 3" size and provides noise control, durability, and low maintenance for windows, step-down walls, and room dividers. Pittsburgh Corning, Pittsburgh. www.pittsburghcorning.com **CIRCLE 235**



◄ Entrance to a secret lair

Responding to an increased demand for secret doors that hide secret rooms, Wine Cellar Innovations created the Hidden Vertical Display Door. From the front, the hinged, swinging door looks like another vertical rack that identically matches the style, depth, wood species, and stain of surrounding racks. However, hinges are not visible, there is no handle, and it is flush with single deep racking. When light pressure is applied, the door opens, revealing a private tasting room, storage for valuables, or whatever else can be imagined. Wine Cellar Innovations, Cincinnati. www.winecellarinnovations.com **CIRCLE 236**



Wood shutter options

pper Moon Woodworks offers a range of shutter models in two wood species—
lid African mahogany (above) and western red cedar, both of which can be
inted. The mahogany can be stained, while the cedar is weather-resistant and
ll patina to a more rustic silver color over time. Several models feature wrought-
n, pewter, or solid copper hardware. Custom designs are possible at no extra cost.
pper Moon Woodworks, Allentown, Pa. www.coppermoonwoodworks.com **CIRCLE 237**

► Tasteful kitchen design

Artematica Vitrum is the latest kitchen system from Valcucine. Designed by Gabriele Centazzo, the system features durable, tempered, heat- and moisture-resistant glass available in a range of patterns, including etched or with "graffiti" drawings in a variety of colors. Doors are made from a durable, lightweight aluminum frame, and the glass front and work top come in matte or gloss finishes. Valcucine voluntarily subjects its product to rigorous testing and certification by German Industrial Standards, one of the most stringent in the world. Valcucine N.Y., New York City. www.valcucinena.com **CIRCLE 238**

Residential Products

▲ No wallflowers allowed

Following the trend of manufacturer/design school collaborations this year, Graham & Brown has launched a wall covering collection by five students from London's Royal College of Art. The disparate designs include Info (left) designed by Christopher Pearson, which functions as a pattern from a distance, but when seen close up is revealed to be an English-French translation phrase book, and the organically inspired Woodgrain (right) by Zeynep Karaca. Graham & Brown, Cranbury, N.J. www.grahambrown.com **CIRCLE 240**

► Alternative wrap

Unlike house wraps that are porous or breathable, Delta-Dry barrier wrap can't be penetrated by air or moisture. A heavy, channeled polyethylene sheeting, Delta Dry can be interlocked during installation to create a strong barrier against wind- or solar-driven moisture. Openings are left at the top and bottom of the system for ventilation. The house wrap is suited for use under brick, stone, wood, fiber-cement, vinyl-siding, and stucco exterior finishes. Cosella-Dörken Products, Beamsville, Ontario. www.cosella-dorken.com **CIRCLE 239**

◄ Concrete surfacin

Every product from Vivendi concrete surfaces requires custom mold and is poured to spec. Seventeen standa colors are divided into thre categories: earth, sand, an stone. The surfacing is appl cable for kitchen or bath countertops, bar tops, desk tops, fireplace surrounds, o outdoor kitchens. Two style of vessel bowls are also available in standard and custom Vivendi colors. Vivendi is backed by a one-year-installed warranty against cracking and fading. Hallmark Building Supplies, Waukesha Wis. www.hllmark.com **CIRCLE 241**

◄ Taller sheathing option

Temple-Inland has extended its line of FiberBrace structural wall sheathing to include 10' lengths. This allows FiberBrace to be applied from the bottom plate to the top of the upper floor joists without cutting or piecing on floors with 9' ceilings. Eliminating the extra piecing reduces installation time while structurally reinforcing the upper floor joists' connection to the lower floor's bottom plate. Temple-Inland, Diboll, Tex. www.templeinland.com **CIRCLE 242**

► Hot water in an instant

The InSinkErator Hot Water Dispenser delivers filtered, near-boiling (200 degrees Fahrenheit) water at the touch of a fingertip. The newest line of dispensers, Series 1100, is now available in 12 designer finishes, including brushed chrome, oil-rubbed bronze, and matte black. All Series 1100 units are equipped with the only filtration system specially designed for instant hot water dispensers. Some models also dispense cool, filtered drinking water. InSinkErator, Racine, Wis. www.insinkerator.com **CIRCLE 243**

▲ Clingy benefits

The Prestige window film series from 3M is the first clear and nonmetal-based windo films to significantly reduce heat and UV rays entering residential or commercial buildings, according to the manufacturer. The absence of metal prevents corrosion on the film and eliminates interference with wireless and cellular signals. During summer an in warmer climates, the Prestige Series blocks up to 66 percent of heat penetrating the window. 3M, St. Paul. www.3m.com/prestigeseries **CIRCLE 244**

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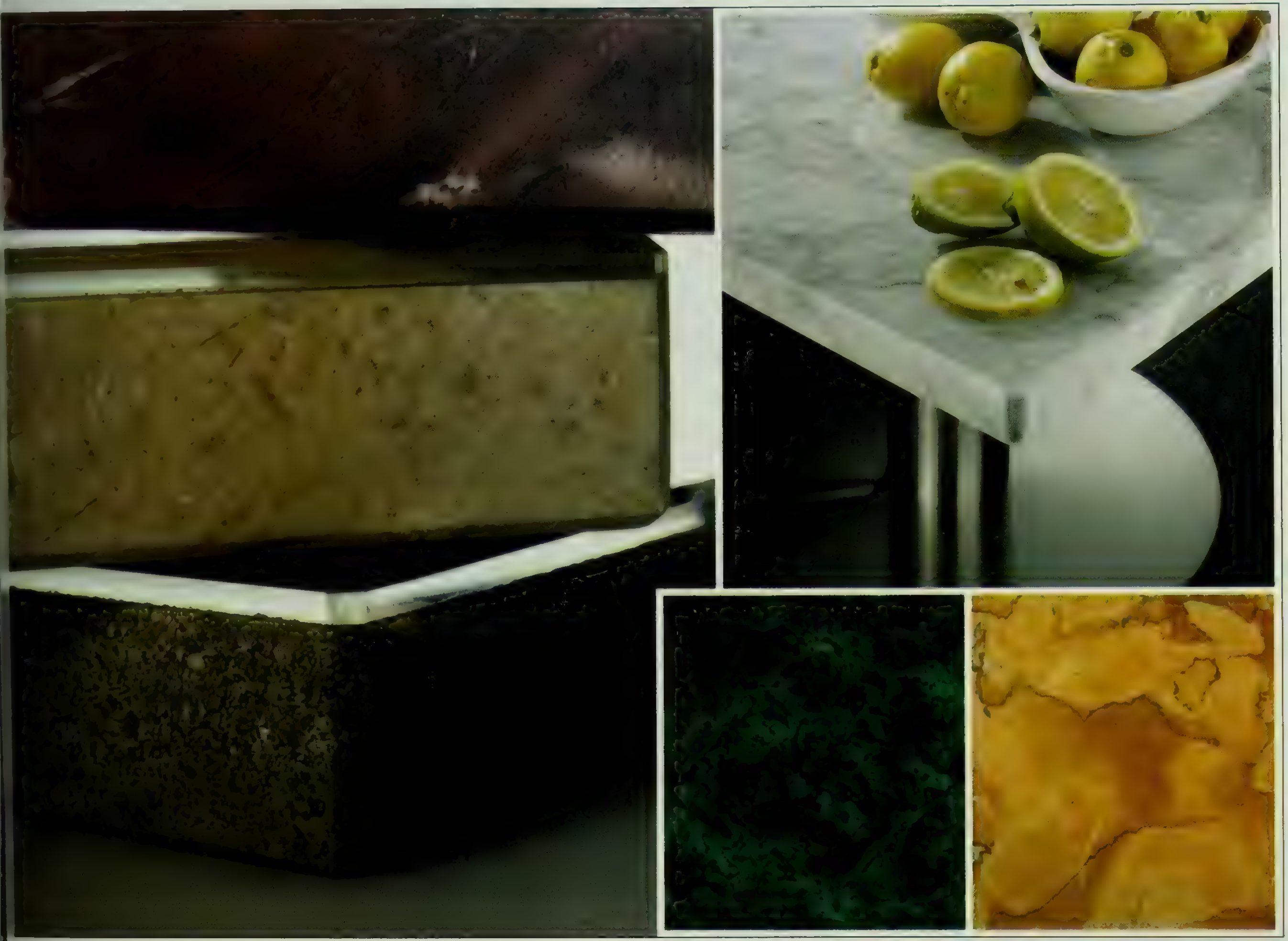
Products Tile & Stone

A review of not one, but two trade shows focusing on the tile and stone industry follows on the next page: **Coverings,** held last April in Orlando, and **Cevisama,** held last February in Valencia, Spain. Included are a range of products for horizontal, vertical, outdoor, and even underwater applications. *Rita Catinella Orrell*



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www.archsystems.com **CIRCLE 200**

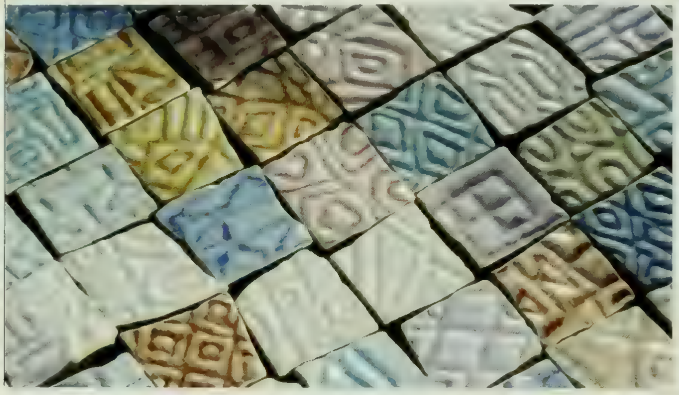
Clockwise from left: An edge detail of Fusionstone in Royal Garden (top), Crema Marfil (center), and Blue Valley (bottom). Fusionstone (shown here in Carrara Gioia) is highly resistant to acids, such as lemon juice. Stone color options include Rosso Verona (right) and Verde Guatemala (left).

Products Tile & Stone
Coverings Review

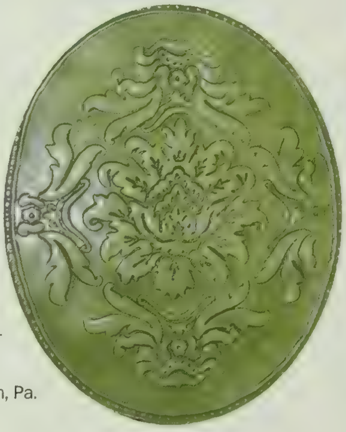
A rich display of tile and stone from around the world captured the attention of more than **33,000 visitors to Coverings, at the Orange County Convention Center** in Orlando last April. Presented here is a distillation of products on view **from over 1,200 exhibitors.** *Jane F. Kolleen*

▼ In the style of majolica

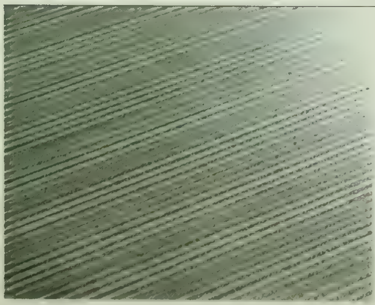
A thick mosaic designed on a glazed porcelain substrate, Ker-Av's Mosaicanda was inspired by a Mediterranean aesthetic; its brilliant, saturated colors are etched in cheerful geometric patterns. As part of its ecofriendly philosophy, the company utilizes exclusively lead-free raw materials. Individual pieces are 1" x 1", and mesh-mounted mosaics measure 12" x 12" rectified. The mosaics are available in a range of seven colors. Italian Trade Commission, New York City. www.italytile.com **CIRCLE 202**



► Ornate accent tiles

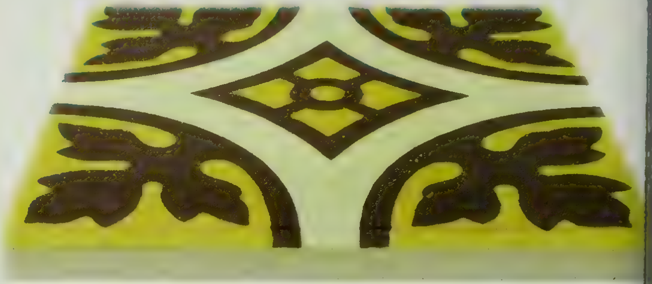


Clay Decor's Aurelia collection delivers big design impact in both scale and shape in these giant elliptical ceramic stoneware tiles. Aurelia Centerpiece measures a massive 18" x 13" and Aurelia Companion, a smaller 9½" x 7", complements the centerpiece tile. Aurelia—a name derived from the Latin meaning "golden or splendid"—has an elaborate leaflike center design surrounded by graceful curved elements that echo the elliptical curve of the tile itself. Clay-Décor, Lederach, Pa. www.clay-décor.com **CIRCLE 204**



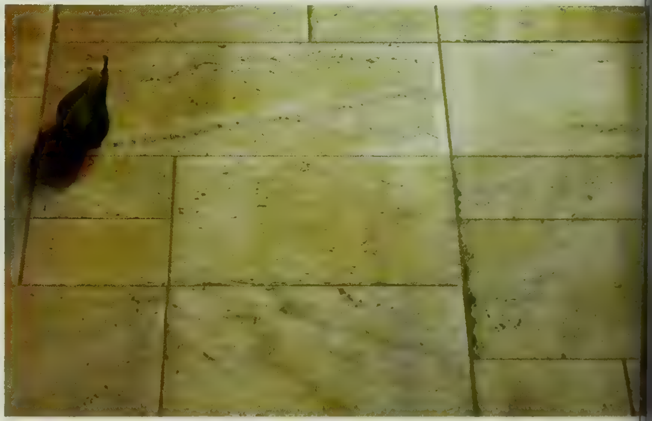
◄ Subtle materiality

Moiré by Edilcuoghi Ceramiche has a ceramic pattern suggesting woven material. Moiré's striated texture resembles a swatch of stripped cotton poplin. The collection is available in gray, black, rose, beige, almond, green, and white. The large-format porcelain tiles, enhanced by high-resistant-surface ceramic glazes, can be seamlessly installed in both large and small interior spaces. The tiles come in approximately 20"-square, 12" x 24", and 4¾" x 24" sizes. All have ground edges, allowing for extremely narrow grout joints. Italian Trade Commission, New York City, www.italytile.com **CIRCLE 206**



▲ Concrete with personality

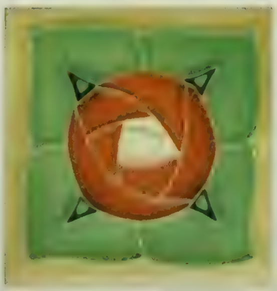
These handcrafted concrete tiles are inspired by the colors and textures of Nicaragua. Utilizing sustainable materials and energy, Granada launched three lines this year—Ech Rustico, and Monostratto. Available in a 12"-square size, Rustico comes in five colors an two finishes. The 13"-square Monostratto is available in 12 colors and aggregate com nations. The Echo Collection includes geometric and floral decorative tiles, such as th one pictured above. Granada Tiles, Los Angeles, www.granadatiles.com **CIRCLE 203**



▲ A weathered look

PietraArt Chiseled Edge Travertine is a natural stone product suitable for all residen and commercial wall applications and light countertop and floor uses. A variation in color gives this stone its distinctive appearance; no two installations look alike. The stone is textured with natural pits and holes and comes in three soft beige tones: Ivory, Noce, and Picasso. It is available in 16" x 24", 8" x 16", 16"-square, and 8"-square sizes, as well as in a "modular" package. Florida Tile, Lakeland, Fla. www.floridatile.com **CIRCLE 205**

▼ A rustic yet elegant Art Deco style



Developed in the "cuenca" style, referring to small raised lines of clay that make up the basins into which glazes are poured, Motawi Tilework's new polychrome designs include 6"-square Button Basket and Mourning Dov tiles; 4"-square Ohio and Pasadena tiles (Pasadena, at left, in Pale Salmon); and Songbirds, Sunflower, and Long Stem tiles, all in a 4" x 8" size. Motawi Tileworks, Ann Ar Mich. www.motawi.com **CIRCLE 207**

Clive Bridgwater, Architect
Promontory, Park City, Utah

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- *Three styles, seven sizes available*

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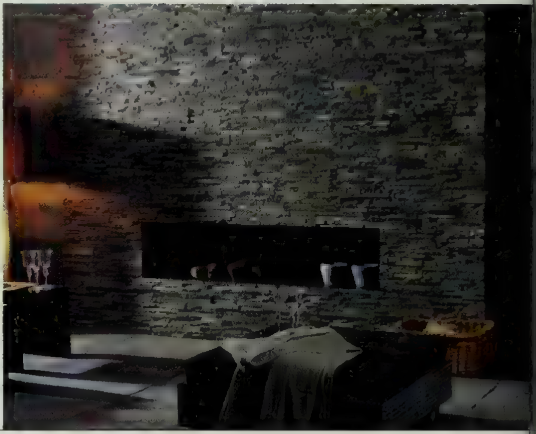
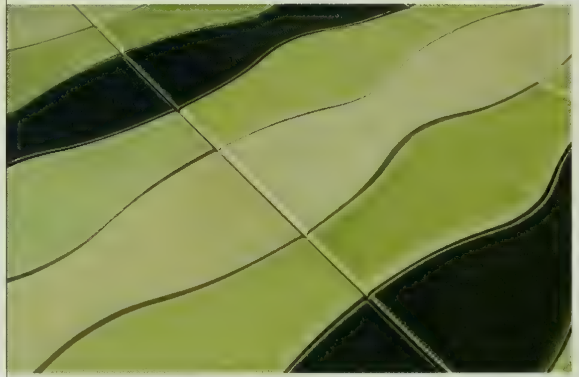
Coverings Review

► An earthy brick look-alike

Imported from Nepal to the Porcelanosa factory in Spain, these exquisitely crafted handmade stone tiles include Brick Nepal (right) and Brick Lhasa (a lighter shade). The 4" x 16" pieces are installed in multiple thin layers, giving them a choppy, rustic appearance that resembles the natural patterns of stone. Set around a fireplace, as shown, the temperature-absorbent tile holds the heat from the fire long after the cinders have cooled. Porcelanosa U.S., Saddle Brook, N.J. www.porcelanosa-usa.com **CIRCLE 208**





◄ Luscious curves

Modulus is a new line from Trikeenan
with its own unique palette of 25 glaz
colors. The line both differs from and
coordinates with the manufacturer's
52 other styles. Modulus offers six tri
styles and 14 shapes, including severa
large-format tile sizes. Well suited for r
idential and commercial spaces, Modu
tiles are durable and withstand high tr
fic. Modulus Ebb & Flow (left) comes i
4" x 12" size only. Trikeenan, Keene, N.
www.trikeenan.com **CIRCLE 209**

► Modern artistry

A new product from Imola Ceramica, Nuvole contrasts delicate base colors with strong vibrant ones to accent and enhance interior spaces. Good for residential applications and hospitality environments, these tiles can stand alone or be combined with edges and bands in multicolor geometric patterns. Colors include green, red, indigo, orange, gray, black, and beige. The double-fired trims come in a 5" x 13" size, and glazed porcelain field tiles measure approximately 13" square. Italian Trade Commission, New York City. www.italytiles.com **CIRCLE 210**

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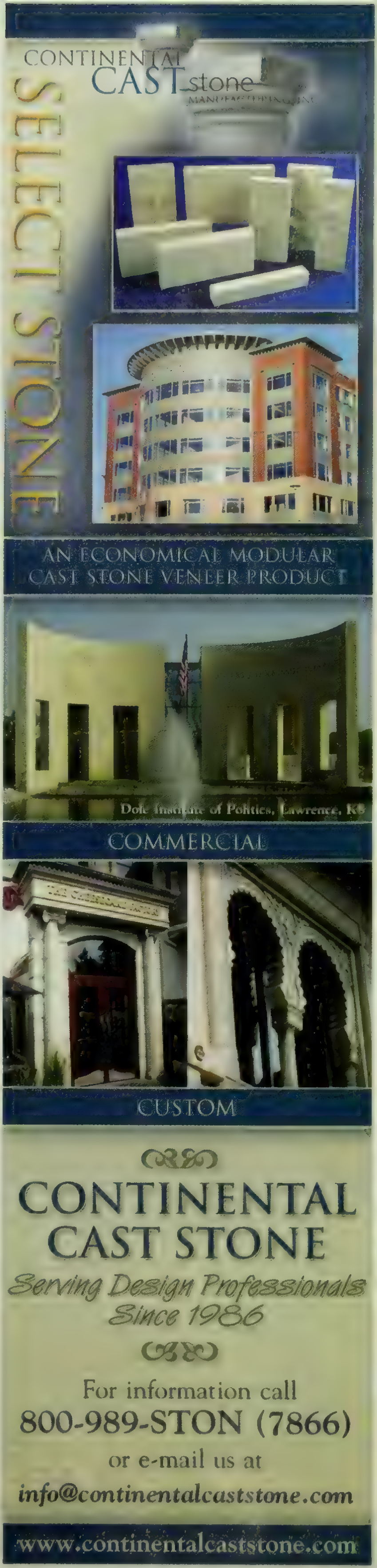

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◄ Living history

Crafted by centuries-old techniques but updated for today's stringent environmental requirements, the Andaluc collection of wall tiles display the embossed, geometric, and hand-painted patterns inherited from Mooris culture. Ideal for residential or hospita ity installations, options include terra-cotta decorated with a hand-poured white glaze or intricate designs embe lished with richly colored or metallic glazes. Mensaque Rodriguez, Seville, Spain. www.mensaque.com **CIRCLE 21**

► Heavy metals

In 2004, Tau introduced the rugged Cor-Ten series, turning heads with its aura of "living" industrial steel. This year, the company's second-generation Metallica series of glazed through-body porcelain tile offers a sleeker Minimalist aesthetic in four luminous finishes: Copper, Rhodium, Silver (flooring, right), and Steel. Suitable for light commercial and residential floor and wall installations, Metallica is available in four large-scale formats, which include 12" x 24", 18" square, 24" square, and 24" x 48". In addition, a number of coordinating decorative shapes and formats featuring cutouts and insets were developed for more creative installations. Tau Ceramica, Castellón, Spain. www.tauceramic.com **CIRCLE 212**

◄ A touch of glass

The 14 groups of Onix recycled-glass mosaic collections have been designe to meet optimum performance standards. Offered in a variety of size forma including ½"-square, 1"-square, 1" x 2" and 2"-square pieces, the collections vary in strength, translucency, colors, and texture. Special finishes and custo designs are also available. Onix Mosai Castellón, Spain. www.onixmosaico.co **CIRCLE 213** echnology **merged with art and tradition** at Spain's 24th annual EVISAMA ceramic tile exhibition, held last February in Valencia, eaturing **the country's most innovative** manufacturers. *Linda Lentz*

► Cutting-edge developments

ombining the aesthetic appeal of slate with the technical erformance of porcelain, Tectonic through-body tiles are deal for high-traffic indoor and outdoor horizontal and vertical surfaces, including ventilated facades (above left). vailable in anthracite, gray, beige, and multicolor, tile formats include 12"-square, 18" x 36", and 12" x 24" sizes; esh-mounted brick; a shinglelike, 12" x 24" relief tile; stair treads; and stainless-steel trim. The interior Comba porceain series (above right) features coordinated dropped ceiling tiles and clever integrated accessory pieces, such as ent sleeves, light housing, toiletry baskets, and shelves. Saloni, Plantation, Fla. www.saloni.com **CIRCLE 214**

◄ Color forms

From Sunset pastels (pink, left) to basic brights, Roca's Rainbow collection boasts modular formats for wall and floor, including 12" x 18", 6" x 18", 12"-square, 4"-square sizes, and 12"-square with a 4" hole for an insert, multitone mosaics, or glass decors. Roca Ceramica, Barcelona, Spain. www.rocatile.com **CIRCLE 215**

rawn from nature

cative in line and texture of the finest Art Deco sonné, Diago's Magica Series is notable for its deliely contrasting polished tone-on-tone floral pattern matte through-body porcelain ground. Suitable for rior walls and floors, this durable, 13"-square tile colon is available in four sophisticated shades—arena d), black, brown, and green—and features three ations with graduated patterning: fully decorated, i-decorated, and with the decoration in one corner. ordinating undecorated field tile completes the ring. Diago, Castellón, Spain. www.diago.com **LE 216**

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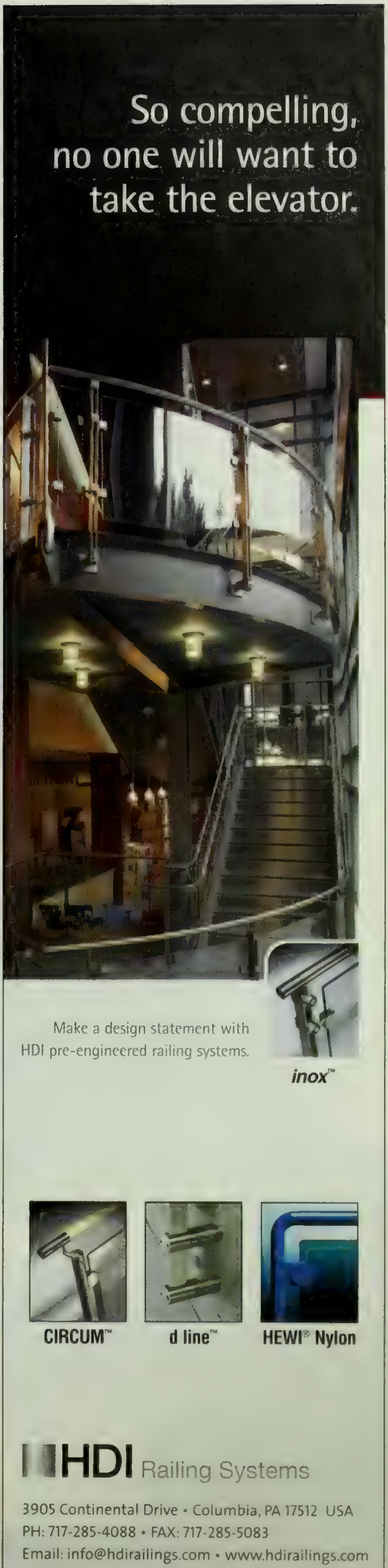

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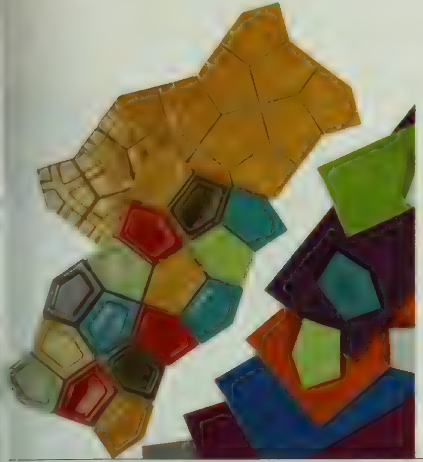
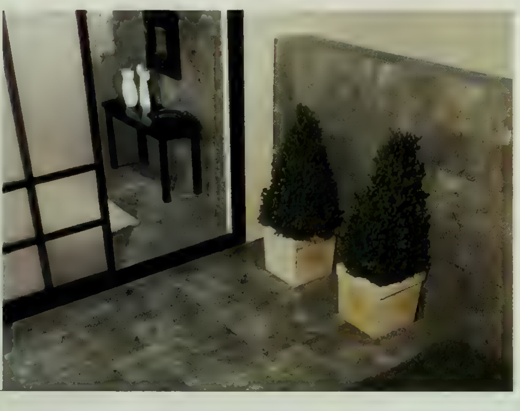


◄ Art and architecture

A welcome departure from the ubiquitous rectangle, the Decorativa Aichi wall collection is a remarkable mini-adaptation of the striking glazed earthenware forms developed by this creative company for the Spanish Pavilion at the 2005 World Exposition in Aichi, Japan, designed by Alejandro Zaera Polo and Aarshid Moussavi of the London-based Foreign Office Architects. Available in brilliant hues, the collection's four playful designs, simply named 01, 02, 03, and 04, are made of glazed white-body ceramic. Decorativa, Valencia, Spain. www.ceramica-decorativa.es **CIRCLE 217**

Rock solid

truded porcelain tile with optimal technical pperties, Keramia's Tibet series reflects the btle shading and tactile qualities of Tibetan te in four colors and anti-slip, rectified sizes luding 12" x 24", 18" square, and 6" square, well as mosaic and trim pieces. Keramia, stellón, Spain. www.keramia.es **CIRCLE 218**

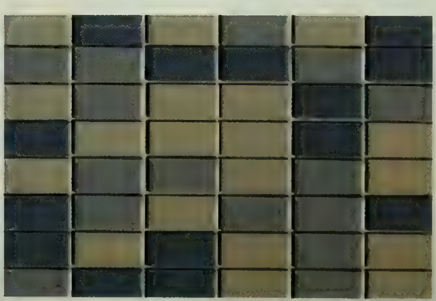


◄ Cement mix

Improving on a trend, the Ikom Series of through-body porcelain tile by Pamesa embodies the essence of concrete in a generous range of formats from 12" square to 16" square to 20" square. A variety of trim pieces are also available. More durable and reliably consistent than the material that inspired it, Ikom is suitable for the rigors of kitchen and bathroom walls and floors as well as exterior facades and flooring. The color offering includes Gris (gray), Negro (black), Blanco (white), Arena (sand), Noce (walnut), and Bambu (bamboo). Pamesa Ceramica, Castellón, Spain. www.pamesa.com **CIRCLE 219**

xtreme tolerance

igned to withstand the rigors of outdoor flooring and mming pools, Rosa Gres Concept porcelain stoneware tiles are claimed by the manufacturer to be easy to ntain, colorfast, nonslip, and resistant to chemicals, obial formations, frost, wear, and abrasion. In addi- to mosaics, an extensive selection of sizes and cial pieces accommodate myriad installations. Rosa , Barcelona. www.rosagres.com **CIRCLE 220**



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Product Briefs

◄ Trip to recovery

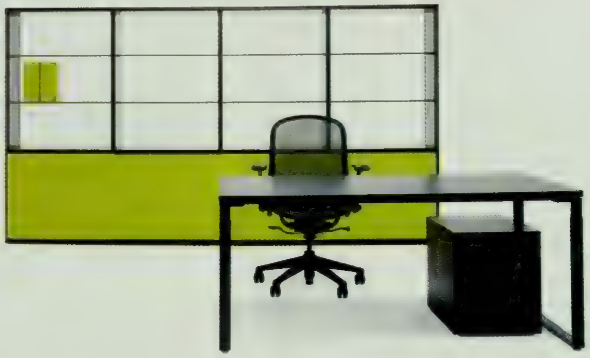
As part of last November's renovation of the emergency department registration area at St. Louis Children's Hospital in St. Louis, designers replaced the existing chipping laminate sheets on the surface of a specially designed "train car" intake area with Sanparrel rigid vinyl sheets. Unlike the previous laminate sheets, Sanparrel material is flexible, will not chip or break, can be wrapped around columns, and ries a lifetime warranty. InPro Corp., Muskego, Wis. www.inprocorp.com **CIRCLE 221**

Revamped brands

his year's NeoCon, The Mohawk up revamped its showroom as l as the product introductions from ive brands—Karastan Contract, kan Commercial, Mohawk nmercial, Bigelow Commercial, Durkan Hospitality. Poetry in ion (right), new from Karastan tract, includes two tailored pat- s that create an animated, luated tonal carpet offering. The 1awk Group, Kennesaw, Ga. v.mohawkgroup.com **CIRCLE 223**

ommercial wood flooring

mbia Commercial, the new commercial division of Columbia Flooring, has launched st line of commercially rated solid and engineered hardwood flooring. The two new include a range of solids in ¾" oak, hickory, maple, and ⅝" bamboo, and a selection of neered hardwood flooring in oak, maple, pecan, and exotic African species, along with a range of hand-sculpted planks. The products meet or exceed industry standards for slip-, indentation-, and scratch-resistance. Columbia Flooring, Danville, Va. www.columbia-flooring.com **CIRCLE 225**

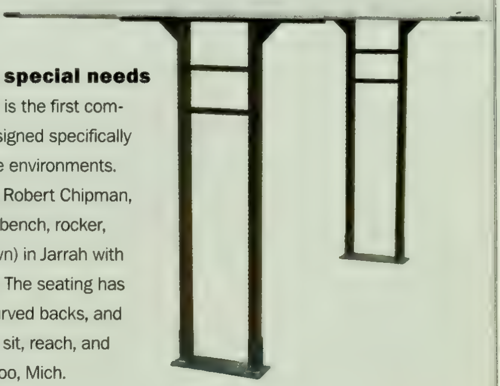


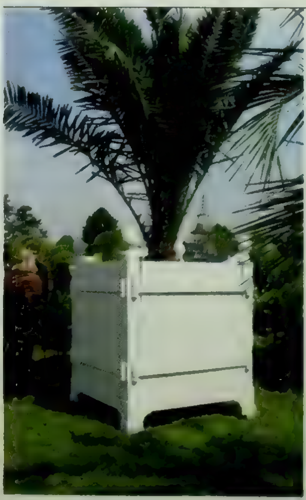
▲ Well-proportioned collection

The *wa* desk and storage collection by Piero Lissoni and Marc Krusin for Knoll are freestanding primary forms, suitable for open-plan, private-office, and collaborative settings. The collection features a continuous perimeter edge detail that connects components, open legs, and thin screens. Joining clips allow for the personalization of individual workspaces. Knoll, New York City. www.knoll.com **CIRCLE 222**

► Outdoor furniture for special needs

Wellspring, by Landscape Forms, is the first commercial outdoor furniture line designed specifically for the retirement and healthcare environments. Designed by landscape architect Robert Chipman, Wellspring includes a teak chair, bench, rocker, and table, and a sunshade (shown) in Jarrah with a marine-grade Sunbrella shade. The seating has higher arms, contoured seats, curved backs, and extra slats that make it easier to sit, reach, and rise. Landscape Forms, Kalamazoo, Mich. www.landscapeforms.com **CIRCLE 224**





◄ Royal garden tree box

Modeled on the citrus tree boxes displayed in the Versailles Gardens since the 17th century, these tree tubs are manufactured by the French company Les Jardins du Roi Soleil. Made of cast iron and solid oak, the pots are appropriate for outdoor terraces, gardens, parks, and urban sites as well as indoor galleries, halls, or building entrances. Resistant to low temperatures, they can be planted with palms, laurels, citrus, magnolias, or coniferous trees. The entire line is based on one model and is available in 10 sizes in a range of colors. Les Jardins du Roi Soleil, New York City. www.jardinsroisoleil.fr **CIRCLE 226**

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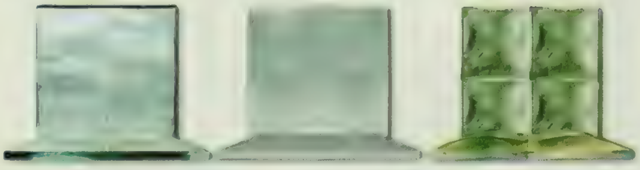
Product Briefs

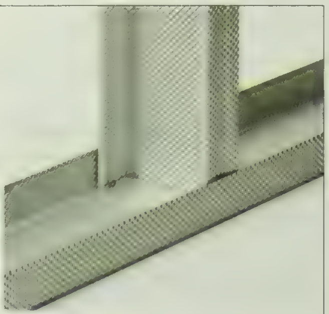


▲ 3D glasses

Produced and developed with the New York City architectural firm Janson/Goldstein and the facade consultants at Front Inc., Convex Glass from Nathan Allan is shaped so that dimensional viewing can take place from either side of the glass. The 3D glass can be safety tempered and produced in ¼", ⅜", ½", ⅝", and ¾" single layered panels, and is available in clear low-iron glass, as well as with cast textures and privacy coatings. The Fire Frost coating has a sealed permanent finish that repels grease, dirt, and fingerprints for both indoor and outdoor applications. The product will be available in May 2007. Nathan Allan Glass Studios, Richmond, British Columbia. www.nathanallan.com **CIRCLE 227**

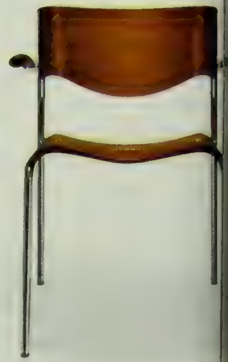
► Fresher concrete floor

The Flowfresh hygienic polyurethane concrete flooring system from Valspar Flooring is intended for applications such as heavy industrial warehouses and processing plants. The flooring can withstand the thermal shock produced from steam or the high-temperature cleaning that floors are routinely subjected to in dairy, beverage, and pharmaceutical applications. Flowfresh floors also contain a continually regenerating pe formance antimicrobial that inhibits growth of mold, mildew, bacteria, and fungi; as the floor is worn, antimicrobial dispersed through the thickness of the surface is released o time. Valspar Flooring, Wheeling, Ill. www.valsparflooring.com **CIRCLE 228**



► Enhanced framing

The technology behind Dietrich Metal Framing's UltraSteel framing product alters the characteristics of flat base strip steel, providing increased strength capacity from lighter gauge material. The result is a product that allows for better acoustical performance, improved fire resistance, faster and easier installation, improved safety, and better finish quality, according to the manufacturer. UltraSteel is currently available on the East Coast, with nationwide distribution planned for late 2007. Dietrich Metal Framing, Columbus, Ohio. www.dietrichindustries.com **CIRCLE 229**



► Ride the wave

Designed by Komplot Design for Stylex, the Avo stacking chair features a subtle wave form on the maple back and seat. As the wood traces these curves, it changes thickness, gradually transitioning from thick to thin and back to thick again. Without any visible fasteners, both seat and back appear to rest gently on the steel frame. Intended for cafeterias, libraries, training rooms, waiting rooms, and public areas, the chair stacks up to six high on the floor. The 14-gauge frame is either chrome plated or finished in one of 10 standard powdercoat finishes. Stylex, Delanco, N.J. www.stylexseating.com **CIRCLE 230**

▼ Smooth operator

The Milan-based manufacturer Res Doors and Systems produces a range of Modern, streamlined interior doors and door hardware. The Fan design (left) features anodized aluminum details and a New Wood Wengé–finished panel, and includes a sliding door mechanism that allows a thin rail to be fixed to the wall. Fan is also available with the rail fitted inside the plaster ceiling, as a pocket door, and as a wing door with bidirectional hinges. Three lock options are available. Also new from Res is Luna Light, a glass door illuminated by hidden LED lights in a range of colors that is operated by a sensor switch or button. Res Doors and Systems, Milan. www.resitalia.it **CIRCLE 231**

► Echos of the past

Authentic Provence offers Ancient Flooring, an exclusive line of antique wood flooring salvaged from some of Europe's grandest chateaux, castles, and farmhouses. The initial shipment, which included 2,000 square feet of flooring, has already been purchased and installed in a Palm Beach estate. A select variety of woods and patterns is in stock and available for immediate delivery. Ancient Flooring comes in easy-to-install tongue-and-groove panels that are 6' 11" in width and average 89" in length. No sanding is required and basic waxing and oiling create a wide palette of deep, rich colors hues. Authentic Provence, Palm Beach, Fla. www.authenticprovence.com **CIRCLE 232**

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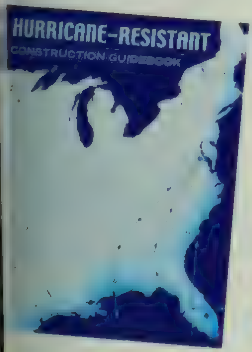
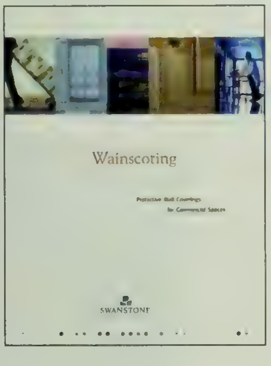


Guide to weathering the storm

A construction industry initiative led by Building Media Inc. (BMI) has launched a multimedia educational program to promote better building practices in geographic regions prone to hurricane force winds and flooding. Included in the project is the *Hurricane-Resistant Construction Guidebook*, a building-code reference for builders in hurricane-affected areas.Building Media Inc., Santa Barbara, Calif. www.buildingmedia.com **CIRCLE 246**

inscoting guide

nstone's new full-color solid-surface waining guide features full descriptions and ensions of Swanstone finishing trim avail- in wainscot matching colors. Examples of ew styles of decorative wainscoting and e different size configurations are shown elp specifiers determine the best use of naterial for both horizontal and vertical ıllations. The Swan Corp., St. Louis. /.swanstone.com **CIRCLE 247**



The role of tile in architecture

ASCER, the Spanish Ceramic Tile Manufacturers' Association, has introduced a new book titled *Moulding Assembling Designing: Ceramics in Architecture*. Intended to be an authoritative reference guide to ceramic tile, the book includes technical information, industry terminology, and a concise overview of tile, including manufacturing processes, installation methods, and the latest technologies. Tile of Spain Center, Coral Gables, Fla. www.spaintiles.com **CIRCLE 248**

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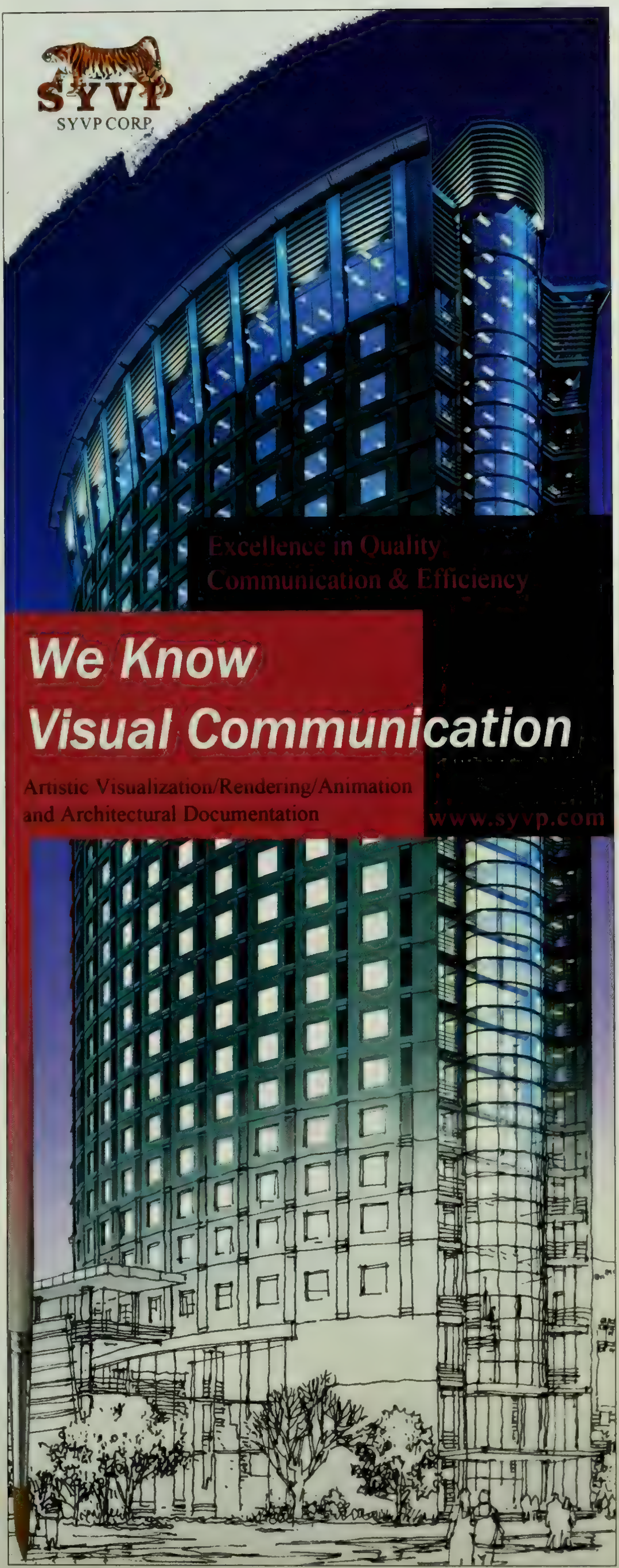
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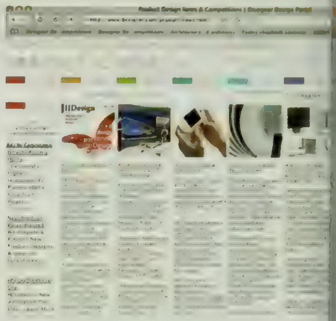
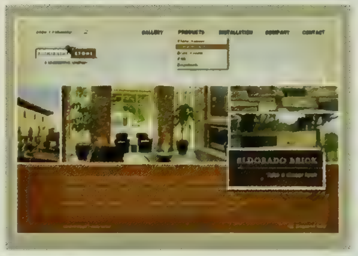
Product Resource: On the Web

www.dexigner.com
This site covers the gamut of design types—from graphics, fashion, digital, and art, to comprehensive sections dedicated to product design and architecture. The product design section includes info on competitions and events as well as new introductions to the market. The site has a clean design, but narrow columns make reading the articles a bit difficult.





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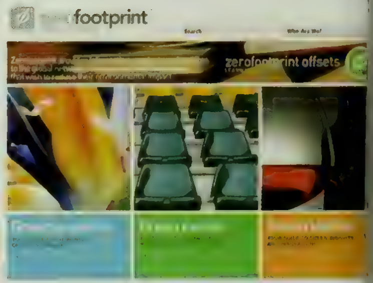
www.zerofootprint.net
This site provides information, products, and services to the global network of consumers and businesses that wish to reduce their environmental impact. A section on Architecture & Construction includes info on green design firms, properties, literature, and products.



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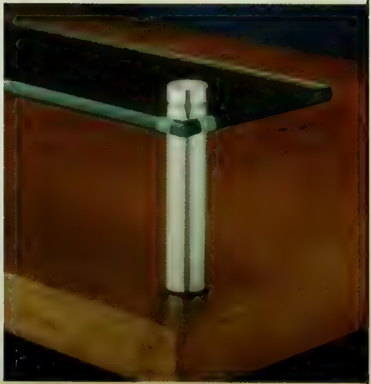

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program title: **"Wood Fire-Rated Doors Combine Safety and Aesthetics," (10/06, page 177)** 106SPONA

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through October 2008.)

Directions: Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 80% is required to earn credit.

Take this test online at http://archrecord.construction.com/continuinged/default.asp

1.	a	b	c	d	e	**6.**	a	b	c	d	e
2.	a	b	c	d	e	**7.**	a	b	c	d	e
3.	a	b	c	d	e	**8.**	a	b	c	d	e
4.	a	b	c	d	e	**9.**	a	b	c	d	e
5.	a	b	c	d	e	**10.**	a	b	c	d	e

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Material resources used: Article: This article addresses issues concerning health and safety.

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AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

Program title: **"Designing for Fire Resistance with Gypsum Panel Systems," (10/06, page 171)** 106SPON

AIA/CES Credit: This article will earn you one AIA/CES LU hour of health, safety, and welfare credit. (Valid for credit through October 2008.)

Directions: Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 80% is required to earn credit.

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3.	a	b	c	d	e	**8.**	a	b	c	d	e
4.	a	b	c	d	e	**9.**	a	b	c	d	e
5.	a	b	c	d	e	**10.**	a	b	c	d	e

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Dates & Events

lew and Upcoming xhibitions

nerging Chicago Bus Tour
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e tour will reveal new architecture south and ›st of the Loop and include several stops with ›mmentary by architects and developers ›olved with these recent projects. For more ›ormation and to purchase tickets, visit ›w.architecture.org.

ıe Bronzeville Experience
ıicago
tober 14, 2006
ıs comprehensive one-day class/bus tour of icago's famed Bronzeville neighborhood explores ɜ contributions the Bronzeville neighborhood has ıde to art, music, film, politics, and economics, h on-site visits and guest lectures. Call 800/997-89 or visit www.grahamschool.uchicago.edu.

əxander Girard: Vibrant Modern
ın Francisco
tober 14, 2006–February 25, 2007
ɩng with Charles Eames, Herman Miller, and orge Nelson, Girard helped form a team that nsformed the legacy of American Modernism. s exhibition will include more than 60 pieces Girard, highlighting his textile works for ɾman Miller as well as a selection of his ɩigns for La Fonda del Sol Restaurant in New k. At the San Francisco Museum of Modern . Call 415/357-4000 or visit www.sfmoma.org.

me Tours II
ɪst Los Angeles
ober 15, 2006
: Home Tour series features beautiful houses .os Angeles's leading architects and includes ving the homes and talking to the architects. ı 213-639-0777 or visit ww.aialosangeles.org.

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ır Series
ɩ Angeles
ober 21 and November 11, 2006
ɜw generation of independent Los Angeles ɦitects showcase and lead tours of recent ɛcts. Hollywood Hills and Los Feliz, October Echo Park and Mt. Washington, November Visit www.caboomshow.com.

P.A.N. (Progressive Architecture Network)
New York City
October 27–December 2, 2006
Curated by Winka Dubbeldam with Helene Furjan, this exhibition features the work of five "young" international architecture offices, whose attitudes toward the discipline are similar. The exhibition will contain models, as well as drawings and photographs, exemplifying the work of each office. At the Frederieke Taylor Gallery. Call 646/230-0992 or visit www.frederieketaylorgallery.com.

Structure: The Los Angeles Series
Los Angeles
November 5, 2006–January 5, 2007
An exhibition of national-award-winning artist Ted VanCleave. A selection of sixteen of his new photographic images captures Los Angeles in a bold and colorful way that extends beyond representation to become brilliant, almost surreal abstraction. These highly stylized photographs juxtapose vibrant color and the geometry of L.A.'s architectural landscape. At ChopChop Salon/Gallery. Visit www.tedvancleave.com.

Ongoing Exhibitions

Paul Rudolph: The Florida Houses
Auburn, Ala.
Through October 15, 2006
This exhibition features one of Auburn University's most esteemed architecture alumni, Paul Rudolph, who produced a body of post–World War II domestic architecture that played a significant role in articulating an American style in architecture. At the Jule Collins Smith Museum of Art Auburn University. For additional information, Call 334/844-1484 or visit www.auburn.edu.

Best of Friends: Buckminster Fuller and Isamu Noguchi
Long Island City, N.Y.
Through October 15, 2006
The relationship between the artist Isamu Noguchi and visionary designer and inventor Buckminster Fuller is illuminated in this special exhibition, which includes models, sculptures, drawings, photographs, film footage, and letters. At the Noguchi Museum. Call 718/204-7088 or visit www.noguchi.org.

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Get into green this fall at the National Building Museum

The Green House: New Directions in Sustainable Architecture and Design is a groundbreaking exhibition revealing exciting trends in green technology, materials, and design. This season, a series of exciting programs and lectures compliment the exhibit:

october

11 wednesday, 6:30 – 8:00 pm
Ritual House: Drawing on Nature's Rhythms for Architecture and Urban Design with Ralph Knowles

16 monday, 6:30 – 8:00 pm
Off the Grid: Modern Homes + Alternative Energy with Lori Ryker

23 monday, 6:30 – 8:00 pm
Spotlight on Design Lecture series with Paolo Soleri

november

15 wednesday, 12:30 pm
Special Presentation of the National Awards for Smart Growth Achievements

18 saturday, 10:00 am – 5:00 pm
Day-long Home Renovation Event
Greenovation, An Expo for the Home:

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Dates & Events

Team 10: A Utopia of the Present
New Haven
Through October 20, 2006
In 1956, several young architects from England, France, the Netherlands, and Italy were charged with organizing the 10th meeting of the International Congress of Modern Architecture (CIAM), a formal gathering of proponents of Modernism. This multimedia show pays homage to the coterie of pan-European architects who, challenging the orthodoxies of Modernism in post–World War II Europe, raised issues of urban design that continue to reverberate in architectural discourse today. This exhibition draws on a range of resources and media that includes correspondence, transcripts, tape recordings, photographs, drawings, and film. At Yale's landmark Art and Architecture Building. For more information about the exhibition, call 203/432-2288 or visit www.architecture.yale.edu.

Zaha Hadid
New York City
Through October 25, 2006
The first woman to be awarded the distinguished Pritzker Architecture Prize, which she won in 2004, Hadid is internationally known for both her theoretical and academic work, as well as a portfolio of built projects that have literally "shifted the geometry of buildings." This exhibition provides a comprehensive look at her projects worldwide. True to Hadid's interdisciplinary approach to architecture, there is a wide range of mediums on display, including painting, drawing, large-scale urban plans, proposals for international design competitions, building designs for contemporary cultural and sports facilities, and documentation of current projects under construction. At the Solomon R. Guggenheim Museum. Call 212/423-3500 or visit www.guggenheim.org.

Seattle Architecture Foundation Tours
Seattle
Through October 28, 2006
Seattle Architecture Foundation connects people to architecture through popular guided walking tours, exhibitions, youth programs, and public forums—programs that inspire participants to engage in shaping their community. Visit www.seattlearchitecture.org.

Rural Studio: Education of the Citizen Architect
Auburn, Ala.
Through November 5, 2006
An exhibition of the Rural Studio, an internationally acclaimed program of architectural educatio within Auburn University's School of Architecture which has educated over 450 citizen architects in the classroom of Hale County, Alabama. At the Jule Collins Smith Museum of Art, Auburn University. Call 334/844-1484 or visit www.auburn.edu.

10th International Architecture Exhibition of the Venice Biennale
Venice
Through November 19, 2006
In its 10th year, this international exhibition is directed by Richard Burdett and dedicated to cities, architecture, and society. Two collateral sections will complement the theme of the international exhibition: *Cities of Stone*, curated by Claudio D'Amato Guerrieri, and *City-Port*, curate by Rinio Bruttomesso. Fifty countries will be represented. Call 39 041 5218711 or visit www.labiennale.org.

Lectures, Conferences, and Symposia

Eric R. Multhauf Lunchtime Lectures
Chicago
Wednesdays, October 4-November 29, 2006
These free lectures include: David Mann on "The Restoration of Louis Sullivan's Ganz Hall at the Auditorium Building"; Tim Wittman on "Sullivan and the Synthesis of Nature and the Machine"; Suzanne Morgan on "The Transformation of Synagogues to Baptist Churches in Chicago"; Lee Bey on "The Politics of Architecture/The Architecture of Politics"; Ben Helphand on "Building the Bloomingdale Trail"; Meredith Mac on "Renzo Piano's Modern Wing at the Art Institute of Chicago"; Neal Samors on "Chicago i the Sixties: Remembering a Time of Change"; an Mary Brush on "Klein and Hoffman: Recent Wor At CAF's ArchiCenter. Call 312/922-3432 or visi www.architecture.org.

Ritual Architecture: Philosophy, Practice, Perception, Perspective
New York City
October 5, 2006
A panel of design notables will discuss the bath evolution from a utilitarian to spiritual retreat as well as cultural and historical relevance. AIA/NY

›dits will be available. At the Hotel Gansevoort. l 212/966-3759.

e American Society of Landscape chitects (ASLA) 2006 Annual Meeting d EXPO and the 43rd IFLA World ngress
nneapolis
:ober 6–10, 2006
ıtured speakers include Jean-Michel Cousteau, ıcator, environmentalist, and film producer; herine Mosbach, International ASLA, promi- ıt French landscape architect; The Honorable ıard Daley, Honorary ASLA, Mayor of Chicago; ve Martino, FASLA, winner, 2006 ASLA ıign Medal and 2006 Award of Excellence for idential Design. At the Minneapolis ıvention Center. Call 202/898-2444 or visit v.asla.org.

stainable Architecture Lunchtime :ture Series
cago
ɔber 10 and November 14, 2006
free lecture series includes Zoka Zola on 21st tury Chicago and Bill Becker on Aerotecture: igning Buildings with Integrated Windpower. AF's ArchiCenter. Call 312/922-3432 or visit v.architecture.org.

ional Design Week
v York City
ɔber 15–21
ɛw initiative that aims to draw national atten- to the ways in which design enriches yday life, through outreach to school teach- and their students and partnerships with gn organizations across the country. The erpiece of National Design Week will be the onal Design Awards gala on October 18. At ɔer-Hewitt, National Design Museum. Call '849.8400 or visit www.cooperhewitt.org.

the Grid: Modern Homes + ernative Energy
shington, D.C.
ıber 16, 2006
itect Lori Ryker will discuss concepts for off- grid strategies and present two in-depth les of projects demonstrating how ideas are loped, refined, and applied to residential itecture. Her recent publication *Off the Grid* es 10 contemporary residences from across vorld which incorporate alternative and off- grid technologies. These urban, suburban, and

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rural homes all demonstrate how more-sustainable lifestyles can be achieved through low-tech and high-tech solutions for energy and resource conservation. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

The New York Institute of Technology (NYIT) Fall Architecture Lecture Series

New York City

October 17 and November 7, 2006

On October 17, Gisue Hariri and Mojgan Hariri of Hariri & Hariri Architecture will discuss their recent interior design projects and their monograph, *Hariri and Hariri Houses*, recently published by Rizzoli, at NYIT's Manhattan campus, 16 W. 61 Street. The final lecture, “Interior Dialogues,” with designers Kitty Hawks, Wendy Evans Joseph, Calvin Tsao, Nancy Boszhardt, and Margaret Newman, will take place on November 7 at Steelcase Inc., in New York City. Judith DiMaio, dean of NYIT's School of Architecture and Design, will moderate a panel discussion about architectural interiors. Call 516/686-1280 or visit www.nyit.edu.

2006 Design-Build Conference and Expo: Harmony & Rhythm in Project Delivery

Nashville

October 18–20, 2006

Featuring an inspiring keynote, an evening of entertainment, and five tracks of education including “Building Information Modeling (BIM): Integrating Through Technology”; “Going Global—Design-Build in the International Marketplace”; “Design-Build—Market Uniqueness”; “People: Becoming and/or Developing a Rock Solid Leader”; “Design-Build How-To—Effective Implementation Strategies.” Call 202/682-0110 or visit www.designbuildexpo.com.

20th Annual National Conference on Liberal Arts and the Education of Artists: Reassessing the Modern, Modernity, and Modernism

New York City

October 18–20, 2006

A forum that brings together instructors of studio and academic disciplines to explore issues of mutual interest. This year's theme, “Reassessing the Modern, Modernity, and Modernism,” addresses such topics as originality, consumer culture, connections between art and science, and the struggle for authenticity. The keynote speaker is curator, artist, and author Robert Storr. At the Algonquin Hotel. Call 212/592-2625 or visit www.sva.edu.

AIA-AAH Fall Conference: The Technologically Sophisticated Healthcare Environment

Miami

October 18–21, 2006

This four-day conference will featu a focused curriculum of innovatio in health-care technologies specif cally for health-care planners and designers, as well as case studies delivered by health-care institutio deeply embedded with emerging health-care technologies. The conference will also feature special events including a charrette, awar banquet, and facility tours. At the InterContinental Hotel Miami. Visit www.aia.org/aah.

Paolo Soleri

Washington D.C.

October 23, 2006

Architect Paolo Soleri's concept o “Arcology,” architecture coherent with ecology, is the basis for his ongoing building project Arcosant in central Arizona. Since 1970, thi prototype town has demonstrated Soleri's interests in minimizing the use of energy, raw materials, and land while allowing for an interact

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with the natural environment. This year, Soleri was honored at the White House for his ongoing work at Arcosanti and received a lifetime achievement award from the Smithsonian's Cooper Hewitt, National Design Museum. In this exclusive public appearance, he will discuss his continuing experimentation in sustainable urban planning, architecture, and design. For information, call 202/272-2448 or visit www.nbm.org.

2nd Annual Restaurant Design Awards Ceremony
Los Angeles
October 26, 2006
Winners of the Restaurant Design Awards will be announced. This year's jury panel includes: architect Hagy Belzberg of Belzberg Architects; *Bon Appetit*'s senior editor Heather John; *Interior Design* deputy editor Edie Cohen; and graphic designer Sean Adams of Adams Morioka. Venue is to be determined. For further information, visit www.aialosangeles.org

Masters of Architecture Lecture: Kengo Kuma
Los Angeles
October 26, 2006
Kengo Kuma established Kengo Kuma & Associates in 1990. His numerous residential works, museums, and other public facilities have received ongoing critical acclaim as well as national and international awards, including the prestigious Architectural Institute of Japan Award in 1997. Recent projects include the Nagasaki Prefectural Art Museum and the Lotus House, 2005. Kengo Kuma will be introduced by Christopher Hawthorne, architecture critic, *Los Angeles Times*. At LACMA's Bing Theatre. To learn more, call 213/639-0777 or visit www.aialosangeles.org, or www.lacma.org.

A+DEN Conference 2006: Identify.Connect.Elevate
Chicago
October 27–28, 2006
Founded by the American Architectural Foundation and the Chicago Architecture Foundation, A+DEN is the foremost design education network in the United States—bringing together leaders and practitioners in the fields of architecture, design, and education. The inaugural A+DEN Conference addresses the range of issues and concerns that K-12 design educators share. A+DEN connects the diverse disciplines that contribute to and comprise design education. The conference will identify and explore ideas that elevate the practice and shape the future of design education nationwide. For further information, visit www.adenweb.org.

Building (in) the Future: Recasting Labor in Architecture
New Haven
October 27–29, 2006
A three-day symposium related to the exhibition *Some Assembly Required: Contemporary Prefabricated Houses*. Scholars, architects, planners, and designers will examine how contemporary practices of production are reshap ing the design/construction proces especially as it relates to fabrication, detailing, and ultimately the organization of labor. The keynote address will be delivered by Kenne Frampton. At the Yale School of Architecture. Call 203/432-2288 visit www.architecture.yale.edu.

Competitions

"Have You Taken the Wright Photo?" Photography Conte
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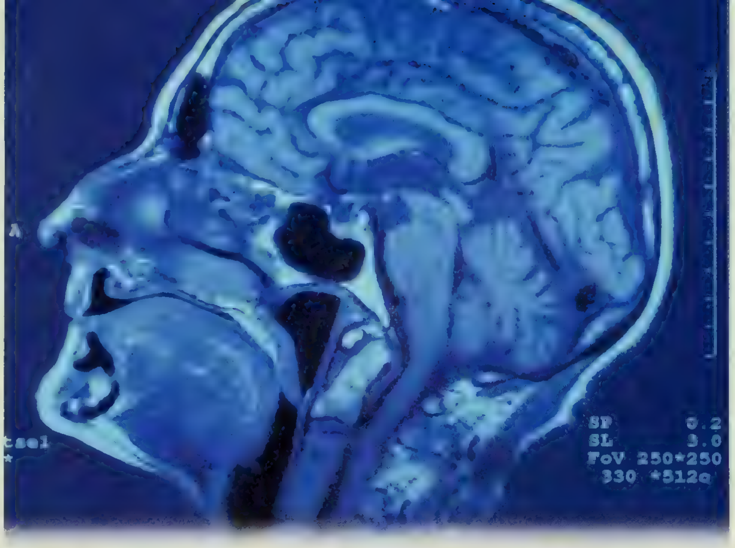

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Record Houses 2007

Deadline: October 31, 2006

The 52nd annual Record Houses awards program is open to any architect registered in the U.S. or abroad. Of particular interest are projects that incorporate innovation in program, building technology, form, and materials. Visit www.architecturalrecord.com.

The 5th Tile of Spain Awards of Architecture and Interior Design

Deadline: October 31, 2006

Sponsored by the Spanish Ceramic Tile Manufacturers' Association (ASCER), these awards recognize outstanding architectural and interior design projects using ceramic tiles from Spain. Prizes totaling 45,000 euros are being offered. The competition is open to professional architects, interior designers, architectural engineers, landscapers, and decorators of all nationalities. Entries may represent new construction, renovation and restoration projects, urban development projects, or exterior landscaping. Visit www.spaintiles.info/awards.

The 2nd Annual JELD-WEN Student Door Design Contest

Deadline: November 1, 2006

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Deadline: November 15, 2006

Submissions are now being accepted for the 2007 Palladio Awards. The sixth annual competition will recognize outstanding work in traditional design for commercial, institutional, and residential projects. The Palladio Awards program is coproduced by *Traditional Building* and *Period Homes* magazines. For additional information, visit www.palladioawards.com.

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Registration deadline: Decembe 31, 2006

Submission deadline: January 1 2007

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Deadline: March 9, 2007

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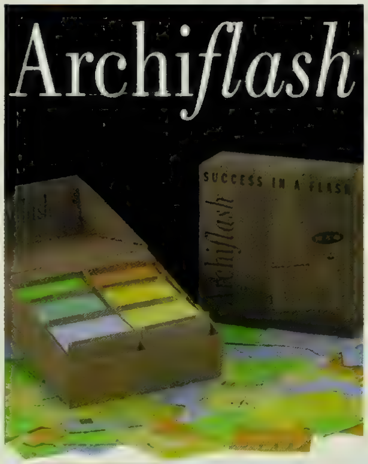

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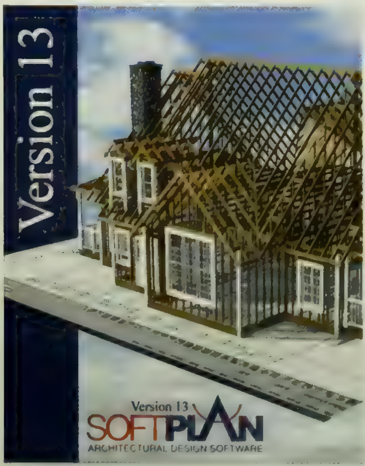

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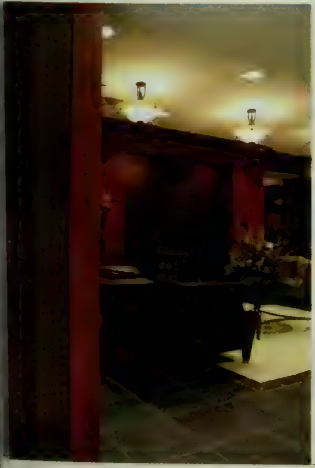

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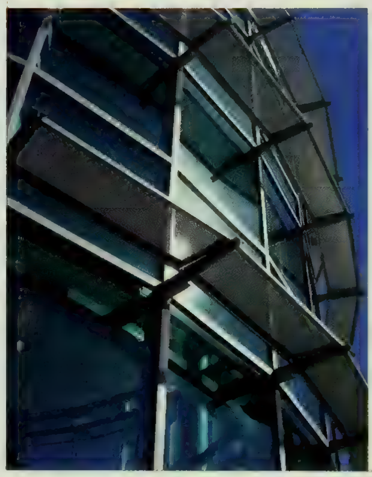

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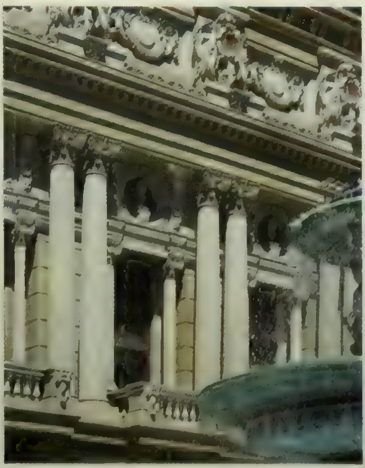

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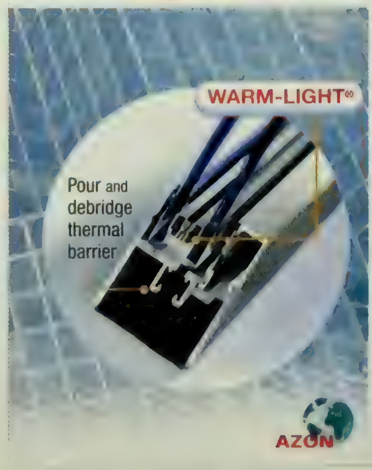
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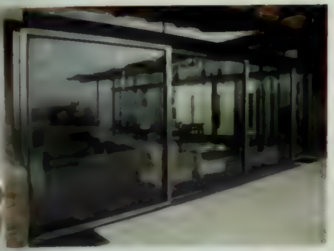

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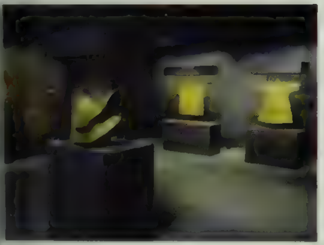

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Unicel Architectural is the proud manufacturer of this unique patented glazing product: Vision Control®. With this custom unit, enjoy total control of light, privacy and sound without worrying about cleaning. Unlike ordinary blinds, Unicel's pivoting blinds made of extruded aluminum are mounted inside a hermetically sealed glass unit offering you 100% dust-free and germ-free louvered glazing, without cords or strings! Blinds are operated using a hand crank, thumbwheel, motorized switch or computer. Ideally suited in interior partitions, doors, windows, curtain walls and skylights.

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www.visioncontrol.qc.ca

| Circle Reader Service #175

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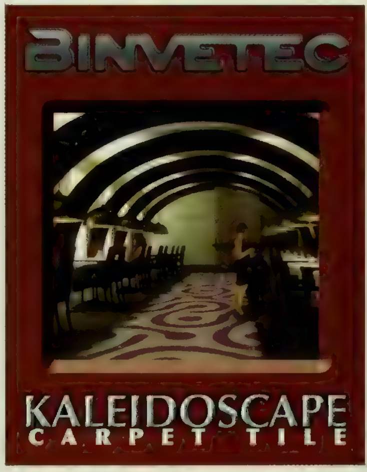

Kaleidoscape Carpet Tile w TractionBac non-adhesive installat system is the only modular floor c ering solution that can create a wh ly non-repetitive and free-flow pattern from a single tile design. T can also be arranged in groups to c ate myriad patterns. Available in n color combinations, they can be u to create entire wall-to-wall floor c erings, runners, or assembled toge er to make six-tile area rugs (6-ft 9-ft.).

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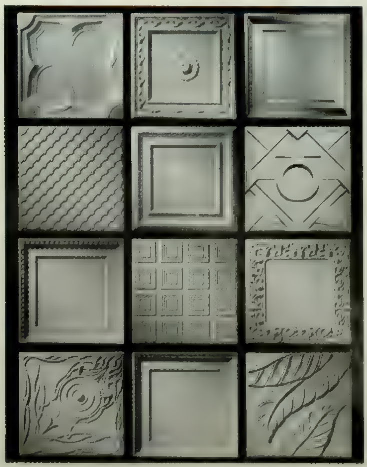
Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

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With over 500 patterns availa Optimax HPL is the premier frpDe Solutions panel. It is a decorative panel made of a high pressure la nate (hpl) surface bonded to a fi glass reinforced plastic (frp) substr For more information, visit Ken on the web.

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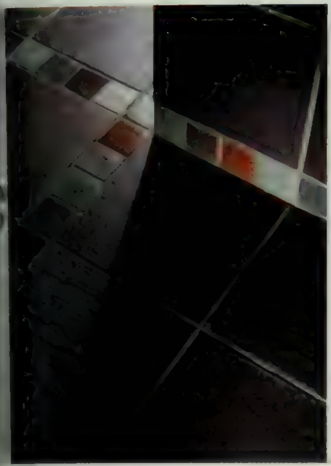

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ainless Steel Floor System

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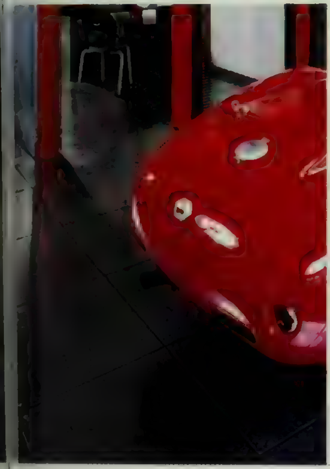

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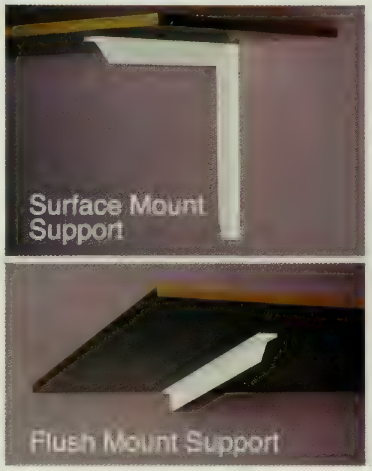
Rangine Corporation / Rakks



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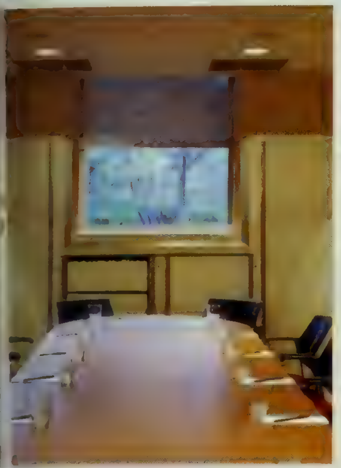

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Saunas

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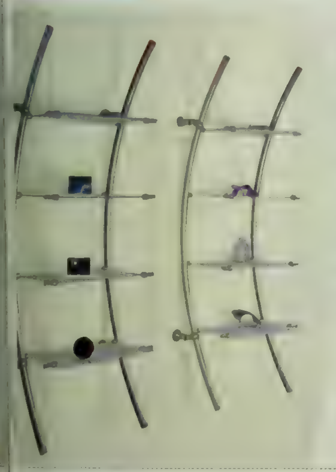
edesigned Shelves

ford Productions



The newly redesigned Archer Shelves retain all of their original appeal and style with a simplified, more elegant design. The system is made from Gyford's stock, satin finished aluminum components. It can be customized endlessly to suit your design needs. Combine the redesigned Archer Shelves with Gyford's new Eclipse shelves in your next design project to create a truly remarkable combination of function and beauty. Made in the USA.

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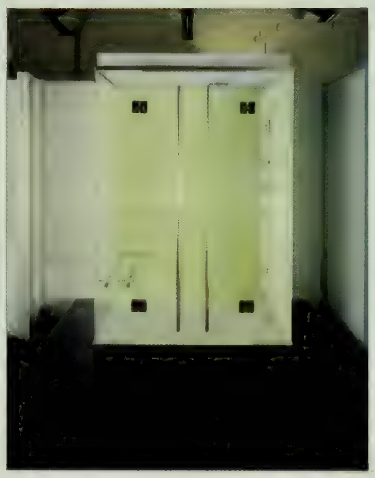
| Circle Reader Service #193

Steam Shower

Sculptured Homes



Sculptured Homes manufactures the WetSpa, a contemporary alternative to a custom-built steam shower, in one complete package. The package includes a 3-1/4-in. Corian floor system that can be recessed for barrier free entry, 3/8-in. tempered glass walls that can be custom color-coated for installation in a corner or alcove, pre-plumbed wet-wall, choice of shower fittings and optional steam, fiber-optic lighting, marine-grade stereo speaker and seating. Standard sizes facilitate easy specification for remodels and new constructions.

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www.wetspas.com

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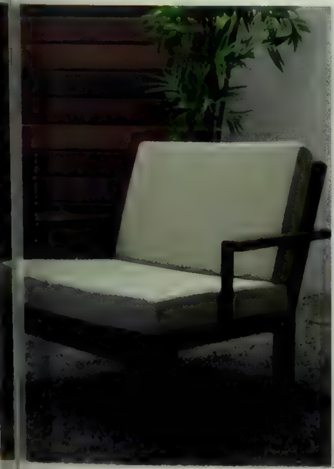
dern Outdoor Inc.



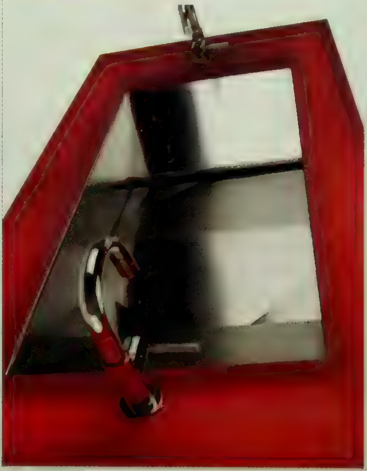
New to their Etra line is this deep seating club chair. Designed for comfort and style, the deep seating line also includes a sofa and ottoman. They offer four complete lines of high-style, clean-lined environmentally conscious outdoor furniture. The Modern Outdoor Collections are commercial grade products designed for use in all manner of public spaces—restaurants, hospitality, parks, resorts, hotels...yet have an aesthetic that is perfect for a residential client's backyard setting. View the entirety of their collection online.

818-785-0171
www.modernoutdoor.com

| Circle Reader Service #194

Modern Form & Function

Neo-Metro R



Neo-Metro's most innovative design is the perfect complement to the new console table units for the Ebb™ Basin. The console table—a metal table with striking rectangular lines—seamlessly accommodates the one-piece basin marked by its flawless 16-gage stainless steel construction, beautiful sloped surface and cleverly concealed drain. An illuminating console resin (featured photograph: Cranjuice) completes a stunning picture of modern form and function. Email info@neo-metro.com

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Zurn Plumbing Products Group

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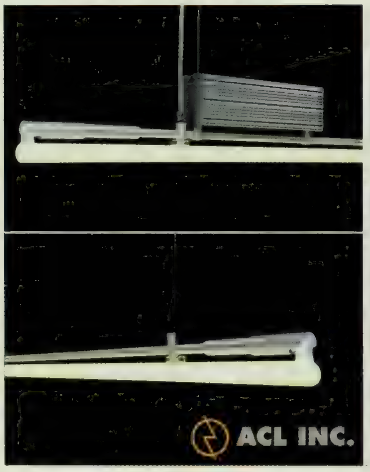

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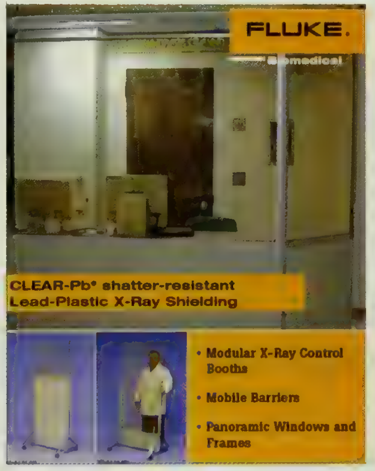
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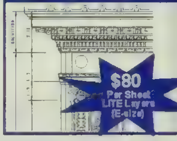

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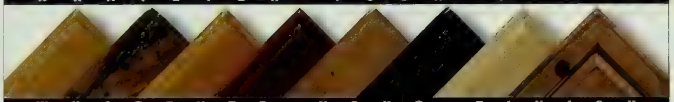

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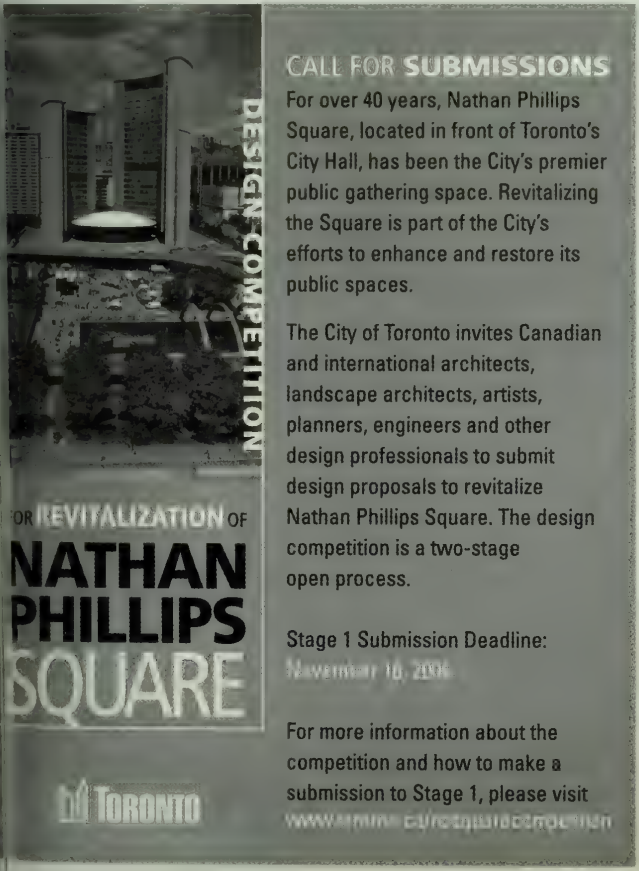

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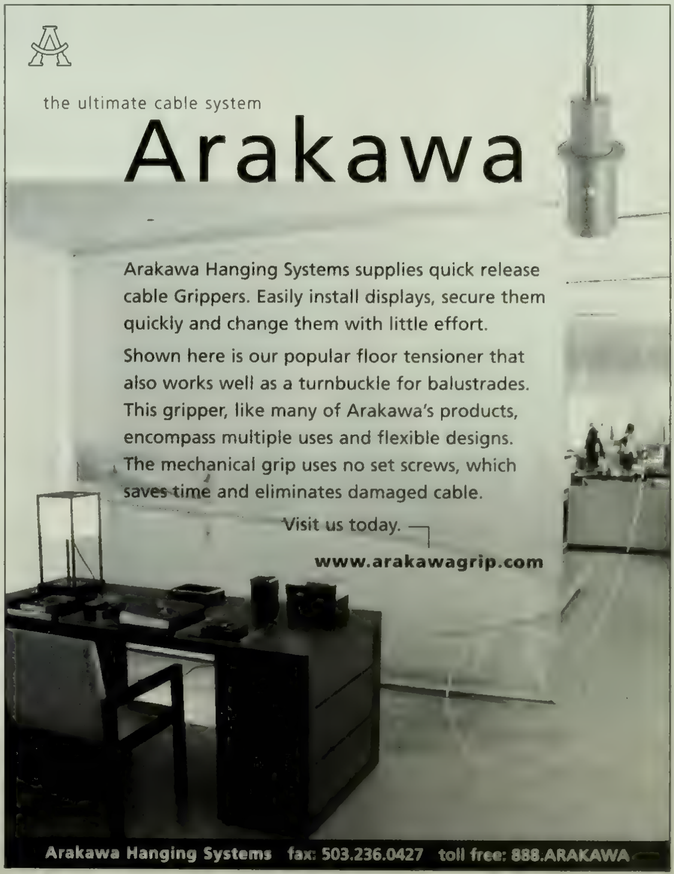

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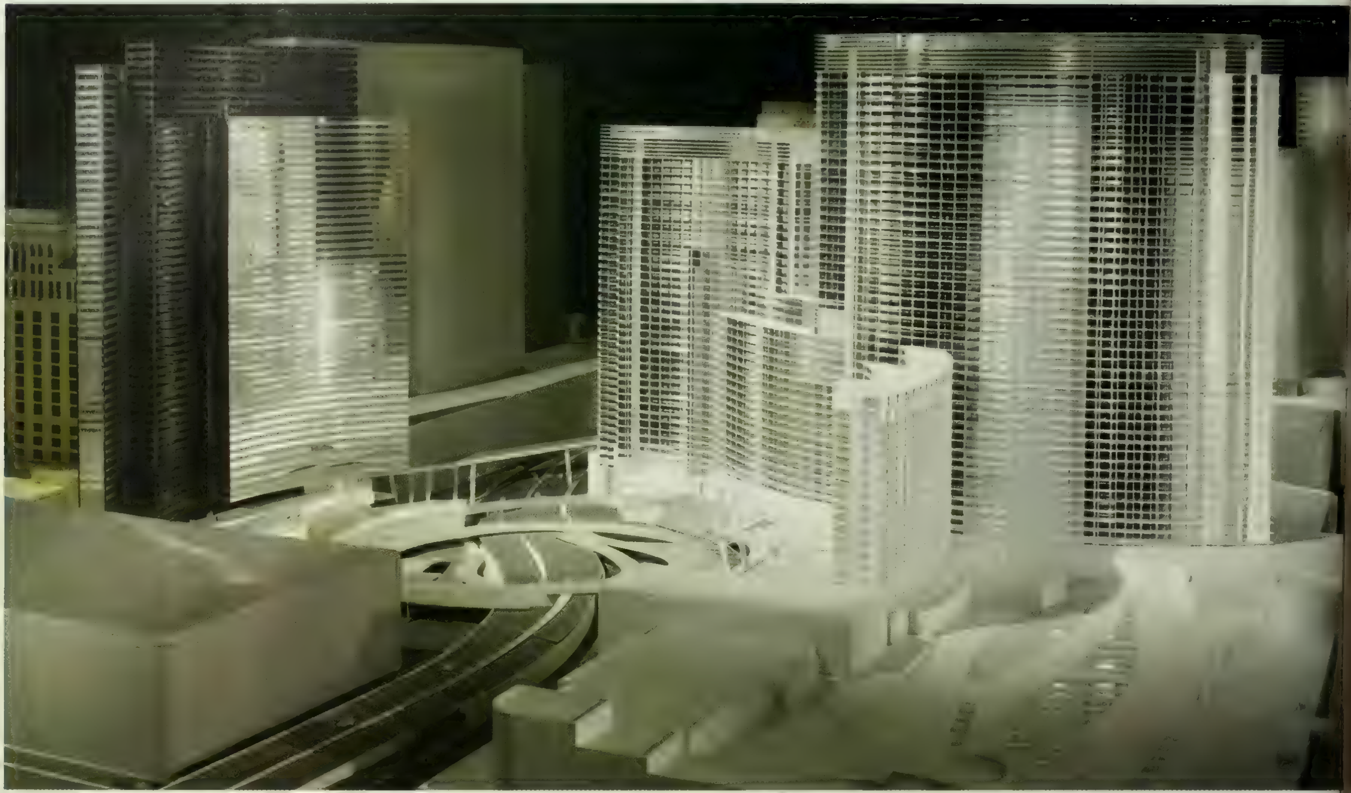


Architecture's Claim to Fame

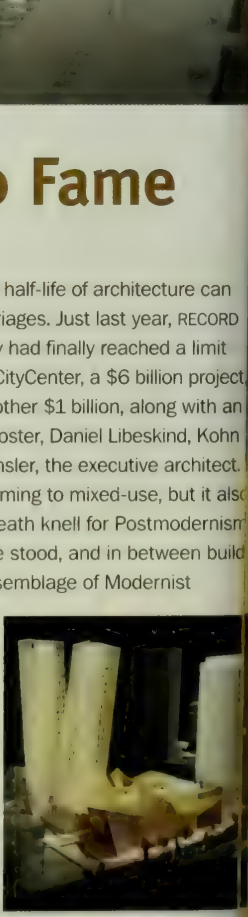
What's left to learn from Las Vegas?

From the pages of ARCHITECTURAL RECORD 2005

A 66-acre, 18-million-square-foot mixed-use complex, MGM Grand's $7 billion CityCenter is both the largest privately financed development in the United States, and a testament to the American urge for super-sized consumption.

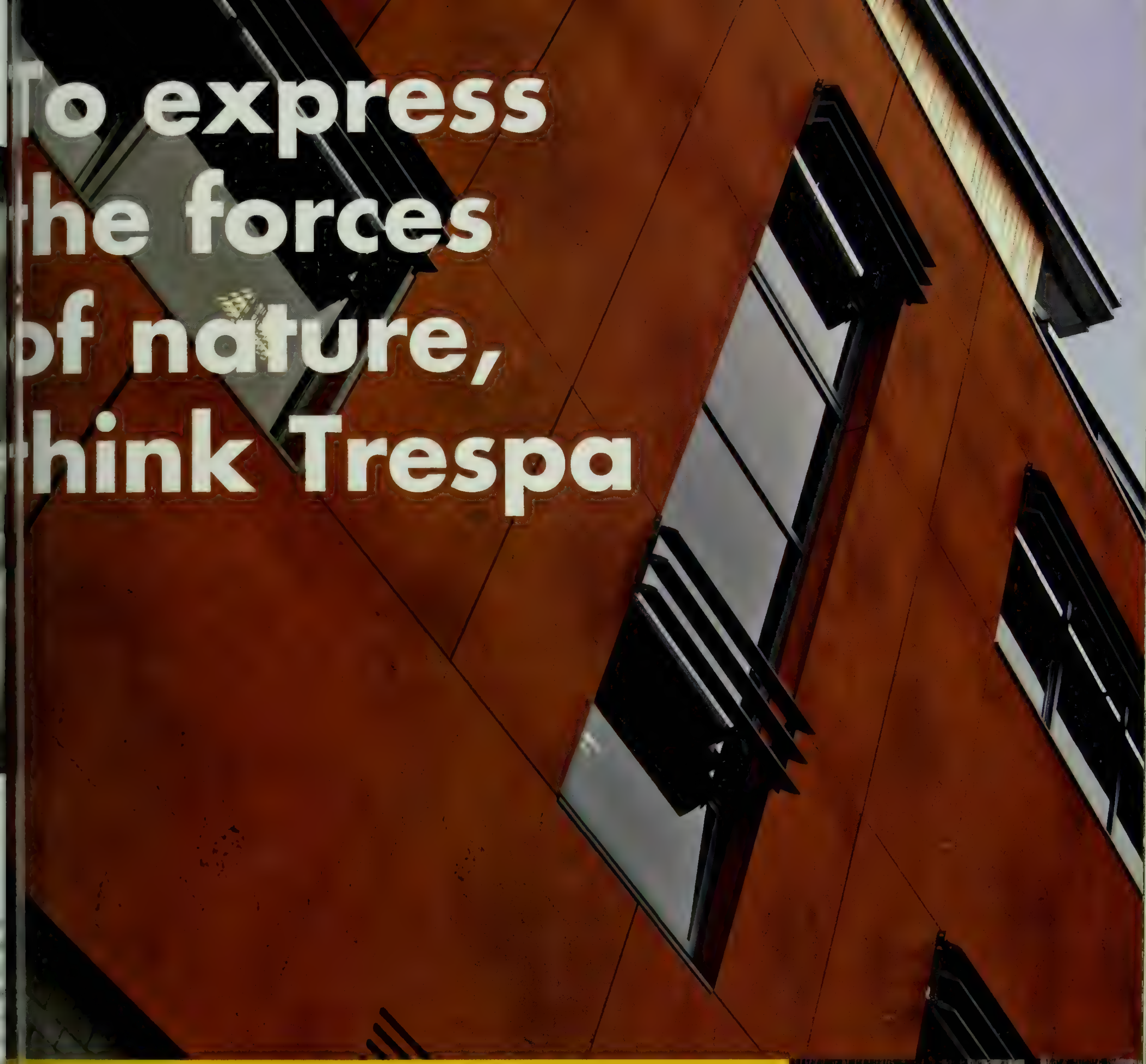
The transition from present to past is fast in Las Vegas, where the half-life of architecture can match the short half-lives of savings accounts and shotgun marriages. Just last year, RECORD asked "What's left to learn from Las Vegas?"—as though the city had finally reached a limit condition [RECORD, May 2005, page 194]. The article cited MGM Grand's CityCenter, a $6 billion project with Cesar Pelli as architect. But to that project has now been added another $1 billion, along with an impressive roster of celebrity architects, including Rafael Viñoly, Norman Foster, Daniel Libeskind, Kohn Pedersen Fox Associates, and Murphy/Jahn, who are all working with Gensler, the executive architect.

CityCenter may represent a shift in Las Vegas development from gaming to mixed-use, but it als signals a shift in architectural style by sounding—yet again—the final death knell for Postmodernis on its home turf. In the lot where a casino inspired by Coney Island once stood, and in between buildings that represent Monaco and the Italian Renaissance, will rise an assemblage of Modernist buildings devoid of historicist references.



But CityCenter does not sacrifice exoticism altogether. Vegas has always provided access to faraway times and places, and proximity to stars (either real or impersonated). In this collection of Modernist buildings, the stylistic imprimatur of each architect is not immediately discernible, so MGM Grand is gambling that the architect's name will signify the exotic. Now the architect's celebrity is a surrogate for themed architectural appliqués.

While architectural styles quickly change, and the buildings come and go, rest assured that there will always be something to learn from Las Vegas. *John Gendall*



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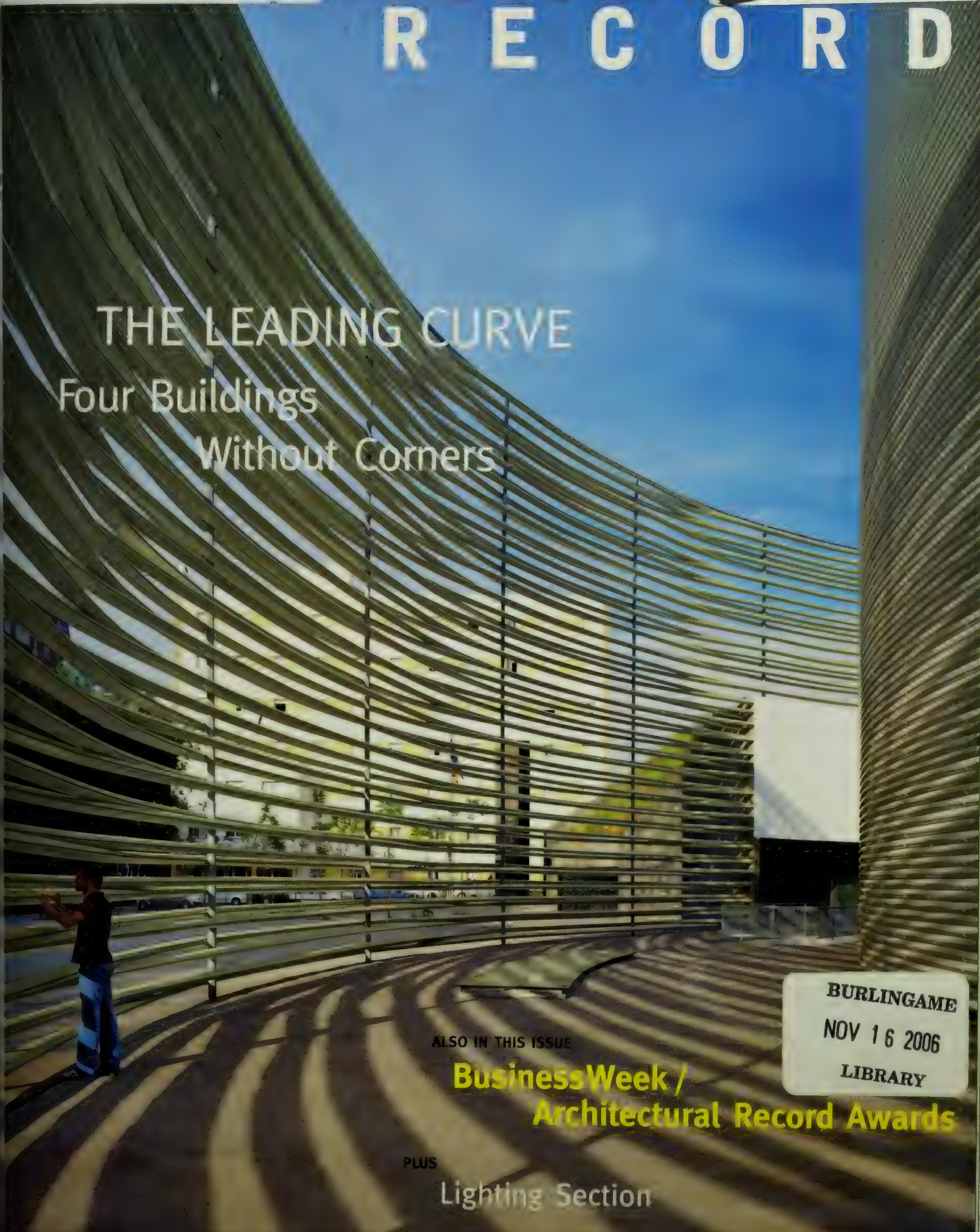

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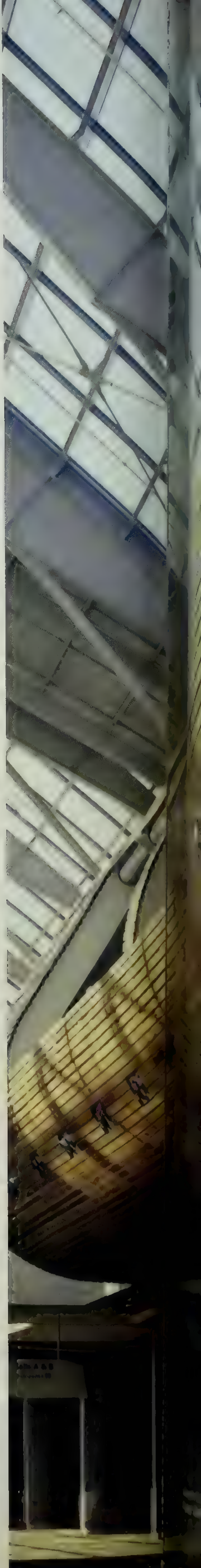

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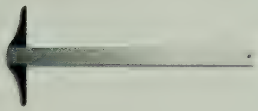

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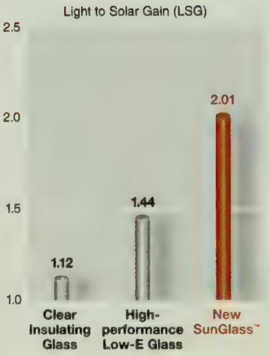

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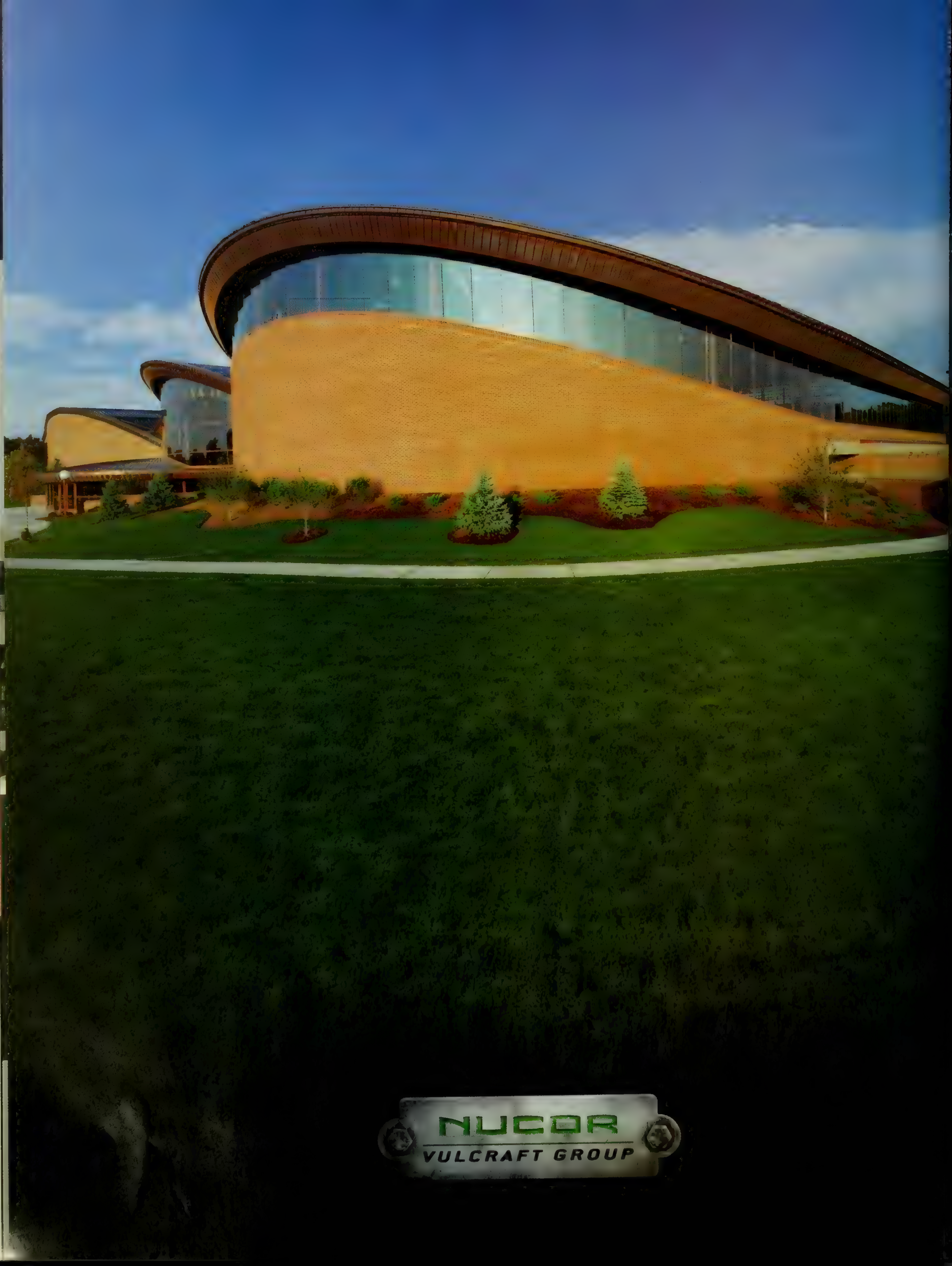
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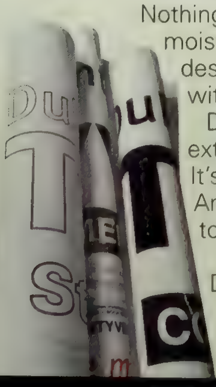

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Mercedes-Benz Museum
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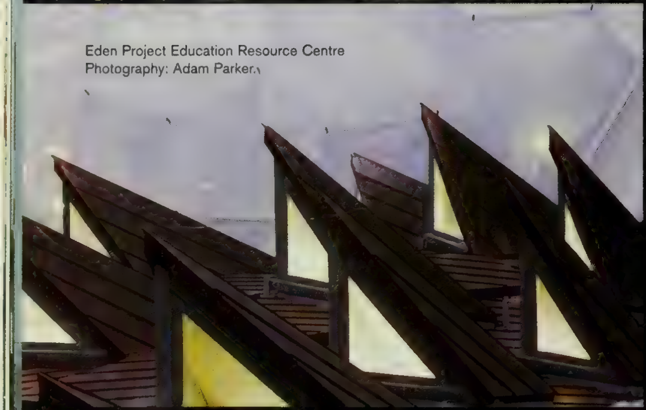

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Photography: Adam Parker

Business Week/Architectural Record Awards

Meet the talented crop of this year's winners and citations for this competition promoting good design as a smart business strategy.

Project Portfolio

Green design, innovative materials, and spiraling forms mark these four cutting-edge projects, from Germany to Spain to the Arizona desert.

Building Types Studies: Civic Buildings

As the featured 11 projects demonstrate, small learning centers forge intimate connections with unique sites to bring people together in our increasingly self-directed public sphere.

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Residential: House of the Month

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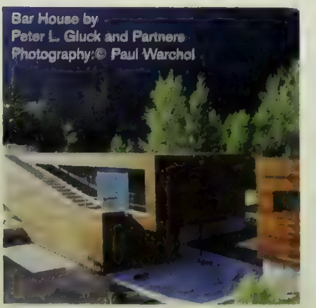

Bar House by
Peter L. Gluck and Partners
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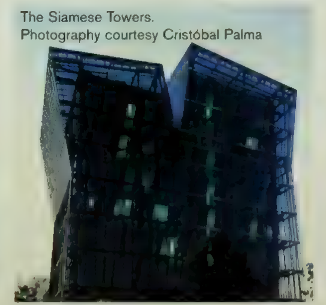
Design Vanguard

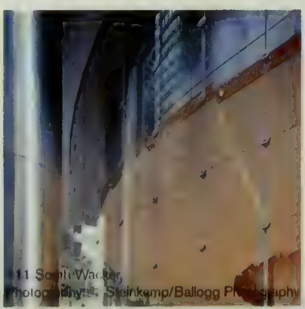
In December, we'll reveal 2006's crop of the best and the brightest emerging architects from across the globe. To whet your appetite, Record chose a sampling from across the past six years of Design Vanguard and caught up with them. Find out how they've matured through slide shows and podcasts.



The Siamese Towers.
Photography courtesy Cristóbal Palma

Lighting Section

This month we showcase three recent Award of Excellence winners of the 2006 International Association of Lighting Designers Annual Awards. Though varied in scale and program, the new buildings illustrate how a close collaboration between lighting consultant and architect can enhance the profile and performance of commercial structures.



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Continuing Education Opportunities

This month's editorial CE opportunity focuses on an innovative, component-based design method known as "refabricating." Three sponsored CE sections offer even more opportunities on archrecord.construction.com.

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This month's Design focus is on a young firm emerging from the rugged desert of Tucson, Ariz. Their affection for and intimate knowledge of the landscape informs all their designs. In Work, meet an architecture-school graduate and public official who fought back when challenged for calling himself an "architect."

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Sky High

Editorial

By Robert Ivy, FAIA

The Denver Art Museum addition represents both fulfillment and vindication for Daniel Libeskind. While the architect witnessed the erosion and diminution of his plans for Ground Zero, he has been le to realize an enriched, lively urban ensemble on the streets of Denver. nultaneously, the structure builds on motifs first articulated at the Jewish iseum Berlin, reinforcing its experiential qualities and displaying a kind of hitectural maturity intertwined with its subject. Finally, this most artic- te architect has realized the American project he has promised repeatedly words and images.

The museum extends the architectural stakes in a nondescript cinct bordering the prospering Mile High City's urban core. Buildings that l struggled individually for decades to establish some kind of relationship knitted together into a cultural center. Across the street, Michael Graves's 6 library, framed and vignetted into a series of episodic images of Tuscan er and drum, never looked better. Literally tied by an elevated pedestrian lge to Gio Ponti's 1971 castellated tower that housed the museum's collec- s, the titanium-clad addition, like shards of Kryptonite, reaches for thin while a massive cantilevered prow looms toward the city with eccentric stence. (Libeskind has cited the Front Range of the Rockies as his inspira- .) No one will ignore this urban sculpture.

All is not polemical brio. Its more subtle accomplishment lies in its in fit: Running east–west, the museum forms the northern boundary of a strian promenade. When conventional wisdom might have dictated exca- on, a bold decision to cloak two elevations of the above-grade parking ge with condominium housing at once compresses the individual elements legible density, costs less to execute than burying the cars, and will attract arger public. Brilliantly, the planner has added the authenticity of human nce with the guaranteed comings and goings of residents across the plaza.

Such programmatic ambition, difficult to achieve in the rough-and- ble of this or any polis, found supporters throughout the city, including the Jennifer Moulton, a highly regarded city planner and project champion. ver native Brit Probst, principal with Libeskind's allied local firm, the s Partnership Architects, also cites Denver's political, economic, and arts rship, which united and stuck behind the plan. His own office and kind's shared personnel in both New York and Denver, and their own professional collaboration insured a technical finesse and polish that contemporary projects lack.

Inside, Libeskind creates a processional sequence that begins quietly in a transitional space that opens upward. As in Berlin, a staircase defines the heart of the experience for the visitor, but whereas historical and social gravitas provided the explicit text in Germany, Denver evokes a lighter mood—call it elation. Traveling through the museum, ascending in order to encounter art, each footfall sets the rhythmic experience. Step by step, level by level, the space unfolds. Walls that hovered outside form tilted interior planes, leaning away from linear stairs toward the light, which rakes across the white surfaces, beckoning higher. Have we seen a stair rendered with such élan in many decades?

Nevertheless, restraint characterizes the spiral. While Wright's Guggenheim Museum offers a vertiginous circular descent around an open atrium, Libeskind modulates the void, never allowing a distracting overview to disturb the equilibrium. In a city marked by the bowl of the sky and the vastness of the surrounding plains, the controlled glimpses through public space of the museum honors the human scale and, unlike every mall in sight, doesn't grab for too much air.

What of the art? How can a building with so few right angles provide the flat surfaces, the walls, the perspectives that frame the views and provide the expected encounters with two-dimensional paintings, or even flat-screened monitors? What objects can fit in the sloping corners? Remarkably, the dedicated galleries provide intimate spaces for establishing the relationship of individual to work and to idea. Where geometry runs out of wall, paintings literally free-float, with little lost.

All is not perfection. Smaller galleries, tucked into the eaves, seem cramped and doll-like. And one might ask how many buildings with such assertive, three-dimensional personalities do we need in our cities? How many museums that outshine their installations? How many shards are too many?

Obvious triggers for raised eyebrows include the architects' willful flourishes, such as the cloud-form patterning of the nearby condominium's curtain walls that will not age well. Yet such arguments pale beside the scope of the accomplishment. As a totality, the Denver Art Museum achieves an urban unity, drawing residents and visitors downtown to experience art through a daring architectural act. In Denver, today's architecture reaches for the sky.

Robert Ivy

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Letters

Life without style

Thomas Hine's insightful review of lifestyle center developments ["Prêt-à-Cité," October 2006, page 78] correctly identifies the benefits of these retail theme parks as business solutions while reminding us that these are not real cities, despite the artful and clever design efforts. Lifestyle centers are a logical extension of a mind-set that favors living in gated communities, driving to distant secured office complexes in inefficient, oversize vehicles, and vacationing at corporate theme parks. The common element throughout is isolation. The promise of the mediated, manufactured "lifestyle" is freedom from unexpected encounters with potentially unpleasant people (teenagers, panhandlers, drunks, etc.) in exchange for an ersatz imitation of a "real" urban streetscape. Trying to distill the attractive physical design elements from the forces that created the originals is like wanting to enjoy the steak without understanding how feedlots and meatpacking houses operate. The risk is that large numbers of people may draw the conclusion that these fake urban environments are authentic evolutionary creations instead of engineered plastic downtown Disneylands.

—George Hutchinson, AIA
Minneapolis

Classicism continued

Martin Filler's excellent October Critique, "Is Classicism the style that will not die or the habit architects can't kick?" [page 51], illuminates a significant phenomenon: Style revival is a pronounced characteristic of architecture, while it is less apparent in other arts. Despite the importance and relevance of the article, however, Filler does not mention the Renaissance, a glowing example of Classical revival. Nor does he discuss the prevalence of complex modern building programs that seldom are happily contained within a symmetrical Classical envelope.

—James A. Gresham, FAIA
Tucson

Long live Imperialism

I enjoyed Martin Filler's October Critique on Classicism and found his assessment of the career of Edwin Lutyens to be very well considered. The Viceroy's House is quite possibly, as Filler says, the greatest public building of the 20th century and is a remarkable synthesis of vernacular and high Classical idioms rendered in the superb local materials of red and buff sandstone. Rarely has Imperialism looked so good.

With respect to the work of Lutyens in India, while early work on Chandigarh was under way, Le Corbusier was reported to have said that the problem with Lutyens was that he did the wrong thing so very well.

—Kevin Hanvey,
Vancouver

Here there be monster

I loved reading Sarah Amelar's description of Morphosis's University of Cincinnati Campus Recreation Center: "With the muscular body of an athletics compound, the slit-eyed head of a dorm, the diaphanous wings of a swarm of lecture halls, and the robust belly of a food court, the University of Cincinnati's new Campus Recreation Center is a chimera of a building." [October 2006, page 100.] I haven't stumbled onto a "chimera" since my art history classes many, many moons ago! Thank you for a refreshing piece of writing.

—Peter McCandless
Washington, D.C.

Speaking geometry

ARCHITECTURAL RECORD readers have enjoyed many informative Russell Fortmeyer articles; however, his recent Exhibitions piece, "Bucky and Noguchi are back, informing three New York shows" [September 2006, page 61], leaves much to be desired.

Best of Friends curator and brilliant architect-engineer-planner Shoji Sadao was a major contributor to the successful execution of urban design artifacts by both Fuller and Noguchi at shared New York design studios. Sadao was the environmental systems planning and design "strut" structurally linking these two giant nodes of synergetic creativity that far transcends Modernism and adroitly links us to Futurism.

The artistic, scientific, technological, and philosophical manifestations of these geometric foresights have very strongly influenced avant-garde visionary architects such as AIA Gold Medalists I.M. Pei, Norman Foster, and others, as well documented by ARCHITECTURAL RECORD.

"Buckminsterfullerene," "buckyballs," and "buckytubes" are not accidental atomic and molecular insights, they are the geometric nanotechnology networks of life itself, affording us vast economic ("doing more with less") and environmental ("Design with Nature") opportunities in art and architecture for the benefit of humanity.

Unfortunately, Fortmeyer muddies the pristine Fuller-Sadao-Noguchi waters of invention and clarity of presentation with the utterly ridiculous nonsense about incomparable stylistic exhibitions that disdainfully permeates some of our schools of architecture globally.

For centuries, geometry has been the problem-solving language of architects as planners and designers. With robotics, "tensegrity," and self-assembly looming in the forefront, Fuller's "synergetic geometry" breakthroughs, tested with counterparts Isamu and Sho need to be better understood.

—Andrew Charles Yanoviak, AI
Honolulu

Corrections

A photograph in October's Critiqu column, "Is Classicism the style will not die or the habit architects can't kick?" [page 51] was incorrectly identified. The photo is not Edwin Lutyens's Viceroy's House, but of one of the twin Secretaria by Herbert Baker, located in the same complex of buildings as Viceroy's House. October's Produ section [Cevisama Review, page 232] included an incorrect imag for Tau Ceramica's Metallica Silver tile. The correct image for Metallica Silver can be found at www.archrecord.com/products/ tradeshows/0610_cevisama-1.a An October news story about pending renovations to the Louv museum [page 37] incorrectly reported that Pei Cobb Freed wo be responsible for the job. I.M. Pe independently developing a solut to manage overcrowding. The October news story "Sheldon Sil stalls Moynihan Station proposa [page 38] suggests that develop Related and Vornado have with a wider-ranging redevelopment plan from the Public Authoritie Control Board (PACB). In fact, p sentations to the PACB are the responsibility of the Empire Sta Development Corporation. In th October article on the Campus Recreation Center at the Unive of Cincinnati [page 100], the cladding on the dormitory com nent is not aluminum, but horiz insulated steel composite pane

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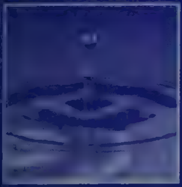

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Record News

Highlights

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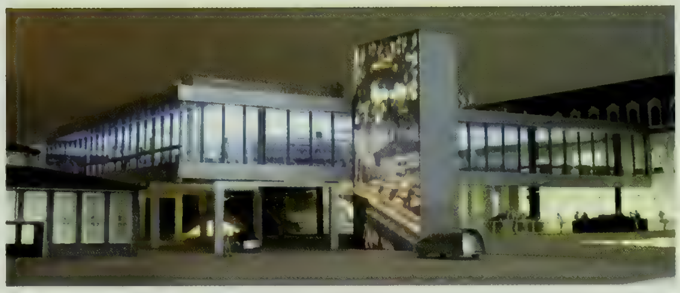
p.34 **New York school is an object lesson**
p.38 **MIT dusts off Maki design**

Third time's the charm as Koolhaas unveils Cornell design


OMA's Milstein Hall, the third design for the project, will link three buildings.

n September 20, Rem Koolhaas esented OMA's design for Milstein all, the newest building for Cornell iversity's College of Architecture, t and Planning, in Ithaca, New York.

The plan, described by olhaas as a way to "undo the tonomy of the box," is a 43,000-uare-foot elongated box plinth that nnects different buildings within a th-century arts quadrangle. In dging the campus's Sibley Hall, Foundry, and Rand Hall, olhaas hopes to unify distinct aces and link the architecture, nning, and art departments.

Designed to be open and flexi-, the building features space for studios, presentation and exhibition areas, an auditorium, and eventually a library. Open, usable space above and below the building will provide ample opportunity for communal gathering. Milstein Hall will extend over University Avenue to provide a gateway experience, and it reaches toward the northern gorge in an effort to connect to the landscape.

A project with a turbulent history, both Steven Holl and Barkow Leibinger Architects were awarded the job but later removed from it. Mohsen Mostafavi became dean of the school in April 2004 and later recruited OMA to design Milstein. Mostafavi was previously chairman of London's Architecture Association, where both he and Koolhaas studied.

"Even though we are in rural upstate New York, land is very precious here, so it is important to be as precise as possible," Mostafavi says. "Right now we have an architecture department, an art department, and a planning department that are isolated. We want a building that will tie these things together and generate connectivity."

Initial plans for the $34 million building began in 1994, when New York City developer and philanthropist Paul Milstein donated $10 million to the college. The project is nearing the end of schematic phase, and ground breaking is expected in 2007. *John Gendall*

oenig's Case Study House No. 21 to be sold at auction

ther one goes on the block. se Study House No. 21, Pierre enig's landmark of SoCal dernist architecture in Los geles, will be sold by the auction ise Wright in December.

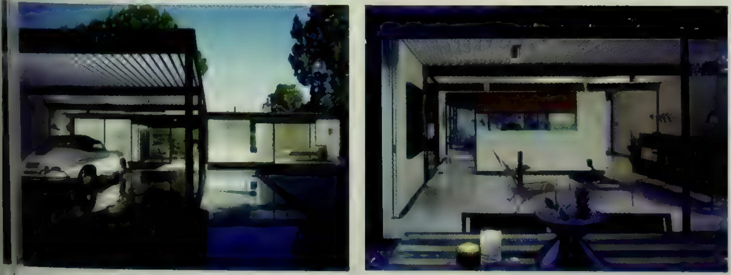
Koenig's No. 21, also known as Bailey House, is a Minimalist clas- consisting of a sublime, open-plan, l-and-glass structure that Koenig in the late 1950s for $20,000. ounded by five reflecting pools cast a continuous dappled light into the interior, the residence has two bedrooms, a central court, a carport, and a water-cooled roof. Koenig himself oversaw a complete renovation of the house in 1998, after which it was sold for $1.5 million. The architect observed in a 2003 interview, "All the aspects of the building are so integrated that you can't take one thing out without destroying the whole." The opening bid is set at $2.5 million.

Other Modernist gems that have been auctioned in past years include Mies van der Rohe's Farnsworth House, sold by Sotheby's in 2003 for $7.5 million, and Philip Johnson's Rockefeller Guest House, which garnered $11.1 million at Christie's in 2000. Auctions lend more rarefied cachet to what is already a precious commodity, and the bidding wars inspired by the setting inevitably lead to higher prices.

"This is not just a piece of architecture that you can determine the value of based on the local market," explains Wright owner Richard Wright. "There is a space between art and architecture where this home and other significant properties lie." Current owner Mark Haddawy seems to have intended nothing less for his residence, having stocked the house with art and design heirlooms; in what might be described as an expensive rummage sale, these items will be auctioned on the same day as the house.

The Case Study Houses were commissioned by *Arts & Architecture* editor John Entenza to promote new building materials, aesthetics, and technologies, and to showcase well-designed middle-class housing. Other Case Study designers included Charles and Ray Eames, Richard Neutra, and Craig Ellwood.

Wright has enlisted photographer Julius Shulman, renowned for his documentation of the Case Study project, to create a new homage to the residence. Those images, along with an essay by historian James Steele and photographic interpretations created by art-world high-flyers such as Catherine Opie and Grant Mudford, will be available in a limited-edition catalog. *Jeremy Lehrer*


P ographer Julius Shulman revisited No. 21 for the upcoming auction's catalog.

Industrial designer Bill Stumpf, creator of the Aeron chair, dies

William Stumpf, 1936–2006.

Bill Stumpf will forever be associated with the Aeron chair, that totem of the dot.com boom of the 1990s. But no designer was less faddish than Stumpf, who died on August 30 in Rochester, Minnesota, at the age of 70.

Stumpf designed the ergonomic Aeron for Herman Miller in 1994, working with Don Chadwick. Eric Chan of Ecco Design, who worked with Stumpf on several projects, called him "a design giant, a deep thinker, a cultural visionary, and good friend, mentor, and teacher." In addition to the Aeron, Chan says, "the Ergon and Equa chairs, also the Ethospace office system, were each breakthrough designs when they were introduced. His impact on the lives of millions of office workers was huge."

Stumpf was born in St. Louis and was educated at the University of Illinois at Urbana-Champaign. His innovations in ergonomic design began with hard-core knowledge of orthopedic and vascular science, which he gained at the University of Wisconsin in the late 1960s. He went to work for Herman Miller in 1970, then two years later established his own firm, Stumpf, Weber & Associates, in Minneapolis. He produced the Equa chair for Herman Miller in 1976; some have characterized it as the first modern ergonomic work chair. Ethospace, done with Jack Kelley in 1984, made serious refinements to cubical partitioning systems, which were just starting to become ubiquitous. Ethospace also pioneered wire management at the dawn of the personal computing age. Years ahead of its time, it came out in the year of the first Macintosh computer.

The Aeron chair exemplified Stumpf's constant return to the basics of a problem: "I work best when humbled," he once said. The Aeron became a literal metaphor f the best qualities of network thinking—flexibility, transparency, and adaptability. Those very qualities defined the designer's singular rigo

Stumpf won the 2006 Nation Design Award for product design, presented posthumously by Coope Hewitt, National Design Museum. *Phil Patton*

Lowe's makes Katrina Cottages available for purchase

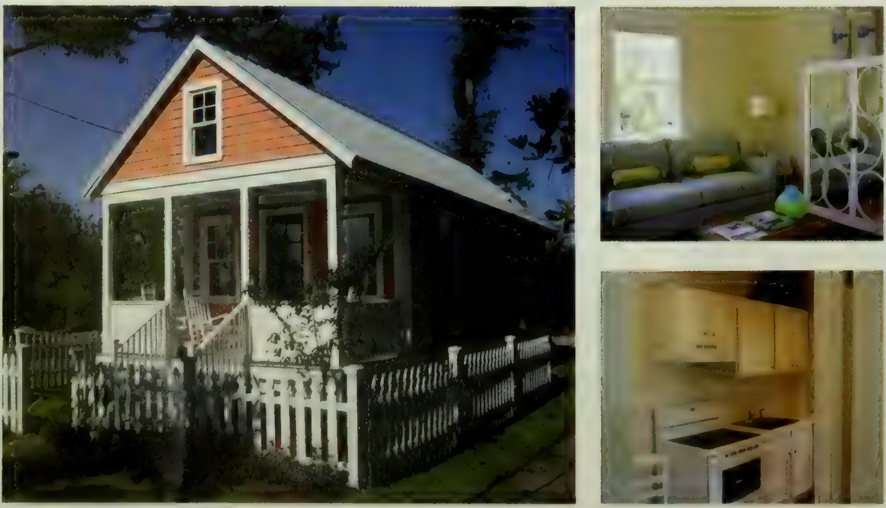
Katrina Cottages, kit-of-parts houses designed for hurricane-affected residents of the Gulf region, will finally be available to the public. The hardware superstore chain Lowe's will sell the systems in its Louisiana and Mississippi stores in late fall.

The bungalow-style cottages range in size from 544 square feet to 936 square feet, and can be expanded. Featuring Hardy Plank siding, wood framing, and metal roofing, they were developed as cheaper, more durable and attractive alternatives to the trailers that FEMA has dispensed throughout the area. The homes resist rot and termites, withstand winds of up to 140 miles an hour, and meet most hurricane codes as well as the International Building Code.

New York–based designer Marianne Cusato first introduced Katrina Cottages at the International Builders' Show in Orlando in January 2006. She designed two of Lowe's first four models, while the others were designed by architect Andres Duany, FAIA, one of the founders of the Congress for the New Urbanism, and by South Carolina designer Eric Moser. The next rollout may include as many as 15 new designs, Cusato says. Dave Steed, general merchandise manager at Lowe's, says that the company is aiming for a $45-per-square-foot cost. Prices encompass all building materials, but exclude construction, HVAC, and code-related foundation materials.

"We can't just put up barracks, or assembly-line housing," Cusato says of the need for the regionally inspired cottages. "There has to be something that creates a sense of place. We have to get back the sense of community that was lost." More than 250,000 homes need to be replaced or repaired in the region.

Lowe's Katrina Cottages offer an affordable, cozy alternative to FEMA trailers.



The Federal Emergency Management Agency and Department of Homeland Security have launched a $400 million program that will likely help the cottages take hold. The FEMA/DHS pilot supports temporary modular housing and favors "context-sensitive housing." It should be "better" and "cheaper" than the "current trailer-park method of sheltering d aster victims," says Tom Wolfe, sen director of federal affairs at the AI Wolfe says that many types of tem porary housing will be considered funding, including the cottages.

States have until October 2 to submit their applications for pro gram funds, which will be evaluate by a FEMA-appointed selection committee comprising governmen representatives and housing expe How the states propose to release the money—via low-interest loan to developers or grants to residen for example—will be left to their d cretion, Wolfe says. The FEMA/DH program is based on requirement H.R. 4939 Emergency Supplemen Appropriations Act. The AIA lobbie heavily in favor of the bill, which became law in June. *Sam Lubell*

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Zaragoza prepares a garden of architectural delights for 2008 World's Fair

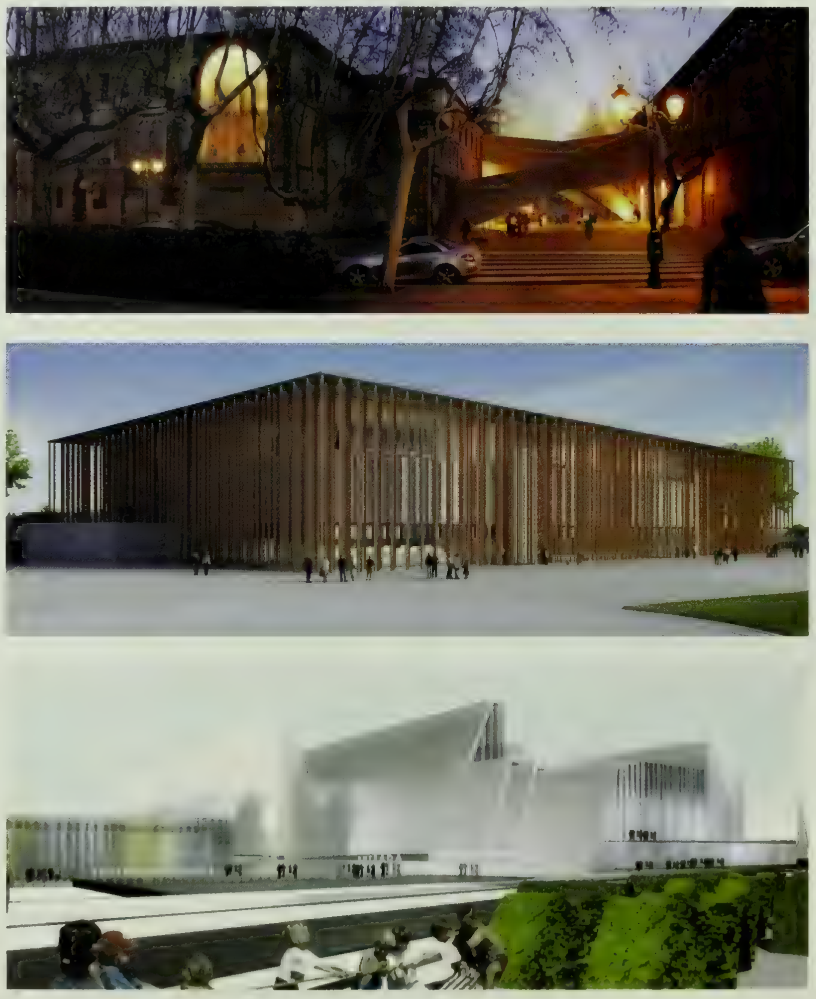
The usual cocktail of trendy architecture, spectacle, and a worthy cause is the formula chosen by yet another Spanish city for its economic self-promotion and urban regeneration, as Zaragoza gets ready for the next World's Fair. Situated 190 miles west of Barcelona on the banks of the Ebro, Spain's second-longest river, Zaragoza is capital of the arid inland region of Aragon. That contrast between its climate and ample river lends special relevance to "Water and Sustainable Development," the theme of Expo Zaragoza 2008, popularly baptized as "ZH$_2$O."

The Expo site comprises 60 acres of former farmland within a meander of the Ebro in which ACXT, the landscape-design arm of Spanish architecture and engineering giant IDOM, has created a series of organically shaped platforms and pavilions. The fairgrounds are set amid a 130-acre Aquatic Park designed by French landscape architect Christine Dalnoky and Barcelona-based architects Iñaki Alday and Margarita Jover. The park includes a botanical garden and a chain of waterways integrated into a natural water purification system.

Expoagua, a public company set up and financed by national, regional, and municipal authorities to build the fair, organized a series of juried competitions to select participating architects. The winners represent a cross section of young and established Spanish architects, as well as some international firms. But only a few broach the fair's theme with real inventiveness.

Standing out among the Expo projects are Zaha Hadid's Bridge Pavilion, which spans the Ebro [RECORD, September 2005, page 47], a Congress Center by Madrid architects Fuensanta Nieto and Enrique Sobejano, and Francisco Mangado's Spanish Pavilion. The Congress Center combines a modulated structure, long-span prefabricated beams, and other prefabricated elements for both rapid assembly and a geometrically elegant design. Mangado's pavilion is conceived as a grove of ceramic "tree trunks," which are structurally hung from a thick roof plane penetrated by light wells. The trees rise from a pool and draw water up their trunks via osmosis to cool the surrounding space through evaporation. "Clearings" in this forest will contain glazed exhibition spaces.

Other projects include a 240-foot Water Tower with a teardrop footprint, a vertical exhibition on water's environmental cycles, and a lookout platform, all designed by architect Enrique de Teresa; six themed exhibition plazas mixing organic forms and water features by the Barcelona team of Enric Batlle and Joan Roig; a fluvial aquarium by Álvaro Planchuelo, a specialist in the type; and the Pavilion of Aragon, designed with a basket-weave skin by the local firm of Olano and Mendo.



Highlights of Expo Zaragoza 2008, from top: Goya Space; Spanish Pavilion; Congress Center.

Architectural achievements w span beyond the fairground limits. Goya Space, for example, is a mode proposal to revitalize the downtow Museum of Fine Arts and adjacent School of Applied Arts, both built for 1908 fair. The project is dedi- cated to Aragon's most famo native, painter Francisco de Goya. The competition attracted Dominique Perrault Gae Aulenti, Spanish archite Cruz and Ortiz, Jordi Garcés and Fermin Vázquez, and oth ers. Herzog & de Meuron wo with a proposal to carve four spaces out of the school vol- ume to represent a Seville church, a Madrid chapel, the country house where Goya's famous "Black Paintings" we found, and Madrid's Royal Academy. While each of the four original sites hold or ha held Goya's paintings, the w of these emblematic "Ancho Rooms" will be finished only in gray brick to match the building facades. They will al contain commissioned artworks related to Goya "to create an uncomfortable dia logue between art and architecture," according to t architects' brief. A double br staircase between the two buildings will add a new poi of entry, too.

Zaragoza mayor Juan Alberto Belloch has won br citizen support for the fair, a the cooperation of the regio political parties. Aragon president Marcelina Iglesias has called the f an opportunity for the city to "mak 20-year leap forward." The public budget for fair infrastructure is just over $1 billion, with additional cost for related improvements to the ci airport, highways, and riverside. Af 2008, the precinct will be dedicat to cultural activities and a technol research park. *David Cohn*

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A river runs through it: Ivies' expansion plans to jump natural boundaries

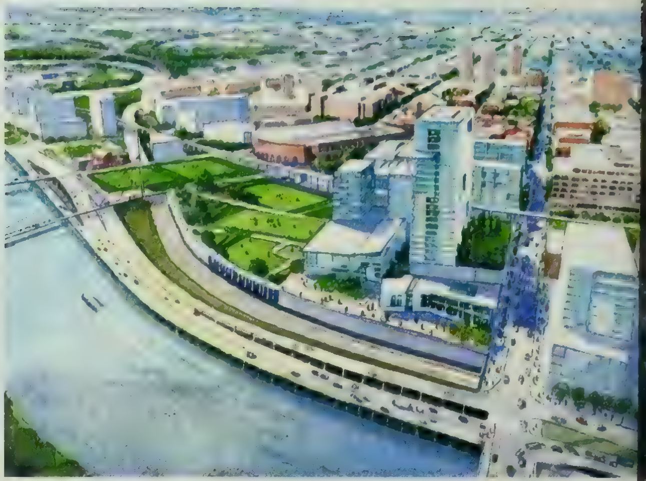
With both their coffers and their campuses bursting at the seams, Ivy League universities are beginning to initiate large-scale expansion campaigns. These schools are graduating from the quadrangle to become multibillion-dollar, master-planned developments that stretch dozens of acres into surrounding neighborhoods.

The board of trustees at the University of Pennsylvania adopted a plan in June for a $2 billion redevelopment and expansion to last several decades. Authored by Sasaki Associates, the plan capitalizes on the anticipated acquisition of a 24-acre land parcel currently owned by the United States Post Office.

The decision dates to 2004, when new UPenn president Amy Gutmann promised to connect the campus with the city. The Schuylkill River divides its eastern edge from Philadelphia, while a university-owned industrial zone, transportation corridor, and sports fields, wedged between the campus and the river, enhance the sense of isolation.

The Sasaki plan aims to integrate the campus, the newly acquired property, and the industrial wedge into one, and to unite this new whole with the city. Dennis Pieprz, Sasaki president and principal in charge, explains, "The design intends to make the expansion of the campus seamless with the city." This will largely be accomplished with a series of mixed-use facilities, cultural venues, public spaces, and an emphasis on the bridges that connect the two sides of the river.

The UPenn plan bears a resemblance to a plan under way at Harvard, which is preparing to submit a 50-year development scheme that encompasses 200 acres across the Charles River, in the city of Allston. Harvard has had longstanding facilities in Allston, including the Business School and Soldier's Field, as well as acreage it has amassed since 1997. The current master plan will weave these parts together and add an ambitious science and cultural program, open space, and commercial opportunities within the larger parcel.



Sasaki Associates envisions the UPenn expansion to engage the urban fa

The scheme also entails relocating Harvard's other professional schools and some undergraduate housing across the river.

Led by Cooper, Robertson, and Partners in collaboration with Gehry Partners and Olin Partnership, the master-plan design team aims not only to merge the campus on both sides of the river, but also to encourage interaction between different schools and departments. Sustainable design is a priority throughout. As part of the Harvard Green Campus Initiative, all new buildings will comply with a yet-to-be-determined LEED standard.

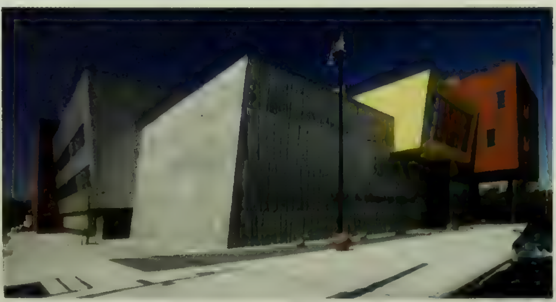
In September, Behnisch Architekten submitted conceptua designs for a 500,000-square-fo science center. This group of four sustainable buildings will house a number of different science departments, but will focus on accommodating dialogue betwee those groups. Daly Genik was selected to design a visual arts c ter in May 2006.

Chris Gordon, Harvard's C.O for the Allston Development Gro says the campus plan is "an inte disciplinary plan where academi can really flourish." The budget i not yet final, but Gordon expects plan's submission to Allston by t end of 2006. *J.G.*

New high school wears its mission on its sleeve

If one is going to create an architecture-themed high school from scratch, then it follows that the building itself could become a chief teaching tool.

The notion seems romantic, but behold Arquitectonica's muscular High School for Construction Trades, Engineering, and Architecture. Opened this fall on the site of an old brush factory in Ozone Park, Queens, the 150,000-square-foot structure has five simple but educational skins. Each marks a different function: precast concrete clads the auditorium; painted steel is used for the library and corrugated steel for the construction and carpentry lab; the entrance is glass block; and redbrick is used in the three-story volume containing classrooms, which cantilevers to rest atop an equally cheeky slanted concrete column.



The school's many claddings signify different interior functions.

Essentially, it's a materials study right there on the sidewalk. And it picks up again in the double-height lobby-cum-gallery, where various cladding pierces the front wall to define the program of volumes inside.

From nearly anywhere you stand, the jutting and nesting boxes arranged along the elbow of the L-shaped classroom "bar" is easy to read. "It's like a teaching library of possibilities," firm principal Bernardo Fort-Brescia, FAIA, says.

Using the physical structure way was important, precisely bec the school isn't the first of its kin The School Construction Authori and architect of record STV wan the new building to stand out fro similar programs in Philadelphia San Francisco, and Manhattan w they tapped the Miami firm. They measured some astonishment w students began scrutinizing their new environment and giving visit architectural tours. Fort-Brescia surprised they felt a connection though, noting, "Schools are gen classic brick with catalog details. one has edges that are emergin and raw—the restless energy o adolescence." *Kelly Beamon*

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French business district to be upgraded

In July, the French government announced major long-term redevelopment plans for the suburban Paris business district La Défense in order to shore up aging buildings and to make the zone more competitive internationally.

Built over a looped network of roads at the end of Paris's historic axis, the urban design of the 395-acre La Défense was inspired by Le Corbusier's concept of towers in a park. The project, named for the Franco-Prussian War monument La Défense de Paris, began in the 1950s alongside postwar economic recovery. Houses, small factories, and farms were first demolished to make way for the Center of New Industries and Technologies (CNIT), the 1958 exhibition hall built by the Federation of Engineering Industries to show off French industrial achievements; the Etablissement Public pour l'Aménagement de La Défense (EPAD) was founded the same year to purchase land for the future district.

Although built in phases afterward, the overall urban design of La Défense has "changed little" says Bernard Bled, director of EPAD, which now manages La Défense. "It is necessary to make it better, more daring, more modern."

Even in its infancy, commentators criticized La Défense for failing to engage the street or to mix uses. The newspaper *Le Figaro* reported, "The walkways at midday are about as quiet as a Sunday afternoon in the country, and at night you could think there's a curfew." The CNIT, however, was celebrated for its 153-foot, thin concrete roof span.

One in six La Défense buildings was built before 1985 and has not been refurbished since. Work will begin with the partial demolition and modernization of 17 high-rise buildings, and includes Kohn Pedersen Fox's redesign of Axa Tower, which, reconstructed to a height of 738 feet, will become the tallest building in France. Other projects include the refurbishment of the Quatre Temps shopping complex as well as the overhaul of the interior of CNIT.

Massing for new skyscrapers surrounding Grande Arche de La Défense.

Along the front of the CNIT's semicircular glass facade, four terraces will be sunk into the pedestrian *parvis*, or esplanade, that runs up the spine of La Défense. Crossed by footbridges, the planted terraces are designed to reveal the full height of the building, whose base was concealed by the parvis.

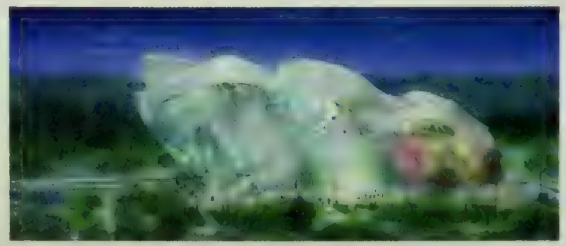
New skyscraper construction is due to start in 2007. That effort will create at least 3.2 million square feet of floor space over a five-year period. And 1,400 apartments are due to be completed by 2013 followed by the extension of a fas transit train line to improve links between the capital, La Défense, and the surrounding region. The project will be financed by the sa of building permits.

EPAD also announced that it launch an international architect competition this year. The winnin architectural firm will construct a iconic building, the Tour Signal, wh will symbolize the urban renewal the district. *Robert Such*

LVMH announces private museum designed by Frank Gehry

Frank Gehry, FAIA, is designing an art center in Paris for luxury goods company Louis Vuitton Moët Hennessy. The $127 million project, the Louis Vuitton Foundation for Creation, will be located in the Bois de Boulogne.

The foundation will "open a dialogue with wider audiences," says company chairman Bernard Arnault, who initiated the project. LVMH already has an art gallery on the top floor of its new store on the Champs Elysées, and has hosted exhibitions at Paris's Pompidou Center, Palais de Tokyo, and Grand Palais. The new building is scheduled to open in late 2009 or early 2010. Modern and contemporary art, as well as original, site-specific commissioned work, will likely be themed around LVMH products and symbols. The center will also contain spaces for research, documentation, and teaching.


The LVMH museum will billow in Paris's Bois de Boulogne park.

The building will take shape on the site of a former bowling alley next to the Bois de Boulogne's Jardin d'Acclimation, a large children's park. A model revealed at a press conference showed an asymmetrical, hunched-over structure with a solid core and jaggedly cut-glass skin. The materials making up this core have not yet been determined, says LVMH spokesperson Jun Fujiwara. The company's press release describes the building as "a vessel within the trees" that is visually open to its environment.

Suzanne Pagé, formerly director of the Musée d'Art Moderne of the City of Paris, will be the foundation's artistic director.

This will be Gehry's second building in Paris. In 1994, he designed the American Center i Bercy; it was recently converted to the Cinematheque Française, a museum and library.

LVMH's plans are anomalou for Paris, where public museums are still the norm. Other private temporary art museums include Cartier Foundation, designed by Jean Nouvel, and the Maison R founded by art collector Antoine Galbert. Arnault's rival Francois Pinault, founder of luxury brand Pinault-Printemps-Redoute and owner of Christie's auction hous recently scrapped plans to build contemporary art museum on t Ile Seguin in nearby Boulogne-Billancourt. Citing bureaucratic delays, he moved his museum the Palazzo Grassi in Venice. S

evelopers seek to impress y channeling Monet

insplant Claude Monet's water lilies to Atlanta? ny not, say two developers. A new gated commu- y named Le Jardin, inspired by the water garden Monet's estate in Giverny, France, is now under nstruction on the southern fringe of Atlanta. The ainchild of Brian Jordan and Stephen Macauley, project has been blessed by the Academie des aux-Arts and the Fondation Claude Monet. In t, Gilbert Vahé, chief gardener of the estate for re than 30 years, will personally oversee the velopment of two replica water lily ponds.

"The climate is very different," Vahé says. "But ll have fewer problems than Monet himself had rowing water lilies because [the weather is] far

picturesque gatehouse of Le Jardin.

e favorable." Vahé adds that the Atlanta replica be truer to the garden in Monet's time, ause tourists have worn down the original.

NCG Architects of Atlanta is designing the ch-inspired entry features, gatehouse, and houses, and helping to develop architectural elines for the residences. Le Jardin will include luxury houses, priced from $1.5 to $6 million, 800 other residences priced from $350,000 to million. Community amenities are to include clubhouses, an athletic park named after an (who plays for the Atlanta Braves), retail s, and 24-hour concierge service. The 1,100- site will also be peppered with large-scale c sculptures commissioned through The Lowe ry, by artists such as Richard Hallier, Margarita a, and Hans Van de Bovenkamp.

"For me, it was important to create this com- ty where kids can see beautiful sculptures and ens and learn about them," says Jordan, who is a children's book author and founder of the -oriented nonprofit Brian Jordan Foundation. auley calls Le Jardin "sort of the anti-golf com- ty," pointing out that at Le Jardin, funds usually ved for golf courses will be funneled into artis- ojects instead. *Tim McKeough*

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Popular architecture forum launches in New York

Its architecture's version of speed dating. At Pecha Kucha, an event born in Tokyo in 2003 and introduced to New Yorkers in September, architects are allowed 400 seconds to show 20 images of their work. "There's no saying 'back' to the projectionist," explains Klein Dytham Architecture principal Mark Dytham, who began organizing the events with partner Astrid Klein. Indeed, the projectionist changes the slide every 20 seconds, ready or not.

The first Pecha Kucha New York was held, incongruously, in a beer garden in Queens. While competition from a dozen other architecture-related events the same September evening portended a low turnout, more than 500 people, mostly young professionals, attended. "Zaha Hadid must be speaking to an audience of three people tonight," an ebullient Dytham said.

Sarah Oppenheimer, a conceptual artist, presented a "piece" in which sculptural objects were classified according to the Dewey Decimal System, while landscape architect Kate Orff of New York's SCAPE did a brilliant riff on the tension between answering e-mails and actually working. Other presenters offered more conventional, if speedy, slide shows: Dytham, whose firm is based in Tokyo, showed a narrow house constructed as part of a billboard in that city; New Yorkers Ben Aranda and Chris Lasch showed the 10 Mile Spiral, a traffic interchange-cum-casino for Las Vegas; Eric Bunge and Mimi Hoang of New York firm nArchitects presented *Wind Shape*, an installation they completed this summer in Lacoste, France.

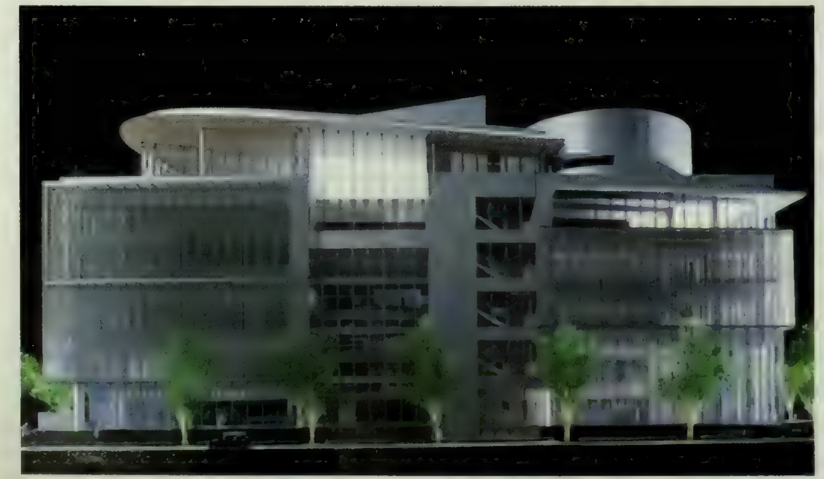
ShoP Architects' Gregg Pasquarelli announced that he was going to show "illicit images"—ones the clients had never released—that included rejected proposals for the East River Park, a building in Little Italy that brilliantly skirts the historic-district requirement that the facade be made of bricks, and renderings of a new Rector Street Bridge to replace the temporary bridge the firm designed shortly after 9/11. He added that if there were any reporters present, he would "deny the whole thing in the morning." It's exactly that kind of subversion that defines Pecha Kuch Dytham says, "We try and get the better-known designers to show something they couldn't normally show at a 'real' lecture. We all know what they do—[so] show us something unexpected."

The tack seemed to appeal to Reed Langhofer, a 26-year-old designer at Perkins Eastman, who said he would attend the next Pech Kucha, while he shared a pitcher o Hoegaarden with a group of friends from Tulane. "We've had fun, and the presenters seemed to have fun too," he said, adding that the forma meant "we got to see a lot more work than in a normal lecture." Check pecha-kucha.org for news o the next event. *Fred A. Bernstein*

MIT reboots Media Lab project

Mothballed in the aftermath of the dot-com collapse, the expansion of MIT's Media Lab, designed by Fumihiko Maki, has been reconfigured and relaunched. The revised 163,000-square-foot scheme of labs, studios, offices, and meeting spaces is a scaled-back version of Maki's Modernist design from the late 1990s. Ground breaking for the $120 million, six-story building is slated for spring 2007.

Unrealized during MIT's recent spate of marquee projects, the Media Center project had to be resold to decision makers as a space that would benefit numerous departments and the campus community, according to Adele Naude Santos, dean of MIT's School of Architecture and Planning. "There's a larger mission than serving one entity," she says. During the go-go '90s, the Media Lab, avatar of the so-called new economy's melding of digital media, advanced design, and marketing, proposed funding the building mostly through corporate donations. As the tech bust proved, Santos explains, "that was not a tenable position." MIT wound up investing in the project along with corporate and private donors.


Maki's MIT Media Lab design was trimmed back from the 200,000 square feet proposed in 1999.

Maki's Minimalist steel, glass, and aluminum design includes a double curtain wall and external aluminum screens. The light-filled interior features open floor plans, overlapping spaces, and several large atria. An extensive basement level was eliminated from the original design, and the building's mechanical systems and other details are being updated, according to Santo

The new building will connec to the Media Lab's current home, the Wiesner Building, designed b I.M. Pei and completed in 1984. The combined structures will accommodate the Media Lab, th List Visual Arts Center, the architecture and planning department visual arts program, and the MIT program in comparative media studies, as well as the Okawa Center for Future Children and th LEGO Learning Lab.

That the plans could be dust off fairly easily attests to the durability of Maki's design, Santos say

"He does things with extraor nary elegance and clarity, and he incredibly efficient," adds William Mitchell, professor of architecture and media arts and sciences and former dean of architecture and planning. "He manages to get a l of program onto a tight urban site *Ted Smalley Bowen*

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Episcopal Academy

Talk about closure: When architect Robert Venturi, FAIA, was a senior at Princeton, he chose to design a new chapel for his alma mater, Episcopal Academy, as his thesis. This time, Venturi, Scott-Brown & Associates is designing the chapel for real—as the centerpiece of the college prep school's new 123-acre campus.

The $212 million project consolidates two sites in the Pennsylvania towns of Merion and Devon onto a former dairy farm in Philadelphia's western suburbs. In addition to Venturi, Scott-Brown, Hillier Architecture is acting as master architect. Hillier is responsible for coordinating teams as well as the master plan, and is designing the lower, middle, and upper schools, th science building, and the renovatio of three historic buildings. The Gun Partnership is responsible for the campus center, which will include t theaters, dining rooms, a library, an a visual arts center. And Bohlin Cywinski Jackson's athletic comple will include a gymnasium, a three-court field house, 10 squash courts fitness center, dance studio, wrestl room, and an indoor competition p

The chapel will anchor one en of a great lawn, which slopes gently and opens up to rural views. The other campus bui-ings flank this green space, forming smaller landscape vignettes. While the designs stress the buildings' and ma ers' individuality, they also sport simple rural forms, with slopi metal roofs and an abundance of masonry and local fieldstone. Grou breaking took place September 27 and the new site will open to stude in fall 2008. *David Sokol*

West Point library/interactive learning cent

Gothic gets a crisp, glassy update at West Point when the Jefferson Hall library and interactive learning center opens in March 2008. The campus's first new central academic building since 1972 was planned and designed by STV architects and engineers in collaboration with Holzman Moss Architects for the U.S. Army Corps of Engineers.

Sitting on the edge of the United States Military Academy parade ground, the six-story, $70 million building was designed with contextual harmony in mind: Stone cladding was sourced from the same quarry as existing structures; step-back massing is demure; similar design details include a "West Point Arch" and entry sallyports and window surrounds that riff on the local architectural lexicon.

Despite the antiquated appe ance, the interior features no monastic nooks and crannies. The 151,000-square-foot building inclu media rooms, technology centers, and 10 interactive learning center plus storage for 1 million volumes.

And cadets can marvel at the Hu Valley views framed by a swath of glazing on the northern elevation.

The library has a bronze rati under the SPiRiT program, which equivalent to LEED certification.

orth Carolina Museum of Art expansion

e rooftop of the North Carolina useum of Art's new 127,000- uare-foot extension building will y tribute to the hills of North rolina when it opens to the public spring 2009. Designed by the New rk firm Thomas Phifer and rtners, the single-story pavilion will clad in satin-finished stainless el that hazily blends into the 164- re campus, and topped with a ling roof plane dotted with occuli.

To protect the artworks from oming daylight, Phifer collaborated h lighting consultants Fisher rantz Stone and engineers at Ove p to create a system that blocks percent of skylight illumination d filters it into a controllable ambient glow. Ribbons of vaults and coffers will reiterate the form of the exterior rooftop. Periodically, "garden galleries" will provide visitors with visual connections to outdoor sculpture. The building will also include a café, retail store, restrooms, and a coat check, as well as subgrade space designated for back-of-house functions and circulation.

The expansion will also include renovation of the NCMA's existing building, designed by Edward Durell Stone. The 23-year-old facility will connect to the expansion via a new arrival plaza, and its interior will be turned over to spaces for temporary exhibitions, collections management, events, and administration. *D.S.*

746 Sunset Boulevard boutique

reate the *Bladerunner*-esque gills turning, tapered slats of the exte- of 8746 Sunset Boulevard, former sign Vanguard honoree Patterns CORD, December 04, page 124] is ing Salt Lake -based com- y 3form extrude carbonate els that it will ultaneously dye allic blue. Some ose panels will then be heat- ed over CNC molds, and all will ttached to a steel frame before g assembled on-site to create a 0-square-foot, stylish boutique.

Although the panels' flowing ities suggest that pricey fashion ds would dwell within it nicely, the ling doesn't have a tenant yet. erns' design may help get a lease ed. Principals Marcelo Spina and gina Huljich contorted the facade inward to lend more prominence to a massive corner window. Because the boulevard crests at that point, the window will seem to hover, grabbing shoppers' attention.

The designers twisted an interior fiber-polymer stairway "the other way, which produces reciprocity with the facade," Spina says.

For all the high-tech effects, approximately half of 8746 Sunset is finished in stucco. That's a holdover from the site's former incarnation as a house, the footprint of which the Patterns design entirely reuses. Code requires that half of existing walls remain in place, but as former residents peer into the building's shimmering gills, or observe it glowing at night, they may never remember it was once home. Kluger Architects is architect of record. *D.S.*

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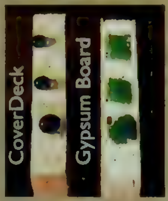

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chitect, know thyself! And know what to call thyself. This month's Design follows two architects 1o knew themselves well enough to realize that the most creative place for them was right where ey started, in Tucson, a place they closely connect with. Then, in Work, we meet an unlicensed chitecture-school graduate and public official in Aspen, Colorado, who was challenged for calling nself an architect. Find out more about these people at archrecord.construction.com/archrecord2/.

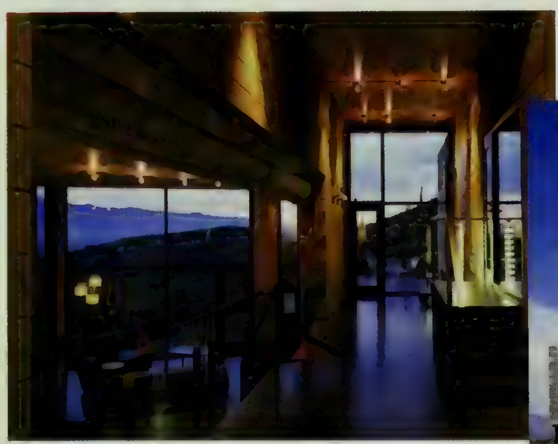
esign

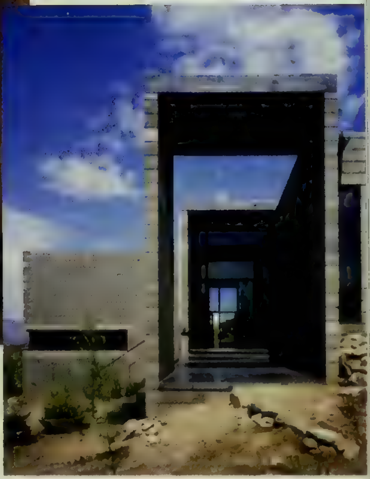
arra Rosano Design Architects

For Luis Ibarra and Teresa Rosano, principals of Tucson-based architecture firm Ibarra Rosano Design Architects, every project is a renovation—even if it isn't. "The project grows from the landscape," says Ibarra. "What we're really doing is remodeling the existing space."

Tucson natives, Ibarra and Rosano feel a fierce connec- ı to the rugged Arizona terrain. The two met in architecture ool at the University of Arizona, and although they say their essors encouraged them to move to a more vibrant place, h as New York City or Los Angeles, it was Ibarra's studies friendship with visiting lecturer Glenn Murcutt that quite ally changed their lives. The Pritzker Prize–winning Australian architect, wn for his economical and hands-on approach to design, advised Ibarra ays to understand the place for which he was designing. "We know Tucson nately," says Rosano, "and we love the distinct seasons that most people 't even think it has—the amazing monsoons, the smell before it rains, the desert, and the tough and fragile landscape." Ibarra agrees. "We feel a onsibility to stay here and do something positive and beautiful," he says. o, it's still unchartered territory."

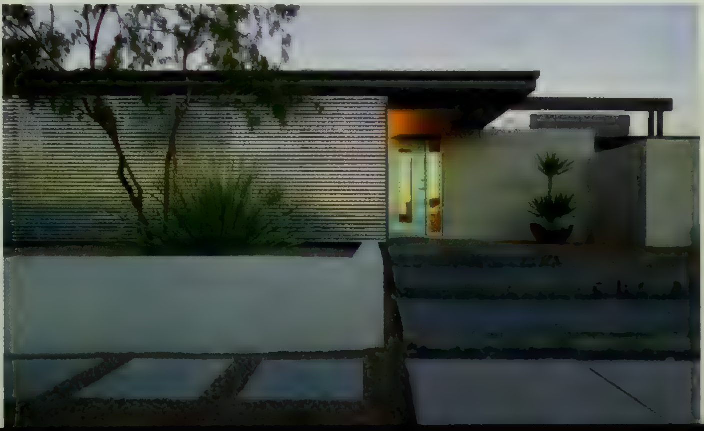
While the married team and their person firm apply modern princi- of proportion and scale to their , they also look to the past and uture for what works for the region. en we use a material, we like it to d on its own," says Ibarra. "We y use frame construction, but ly adobe, rammed earth, and masonry. Sometimes the sim- construction techniques are the to insulate and make a building





Garcia Residence, Tucson, 2001

This 2,150-square-foot home, of sandblasted, engineered concrete block, steel, birch, and concrete, appears like a natural extension of its rocky desert hillside environment.



Winter Residence, Tucson, 2004

A dark, 1940s brick house was transformed by adding crisp details and light-filled living areas. A fireplace that bisected the mail living spaces was removed, and a huge skylight put where its chimney once penetrated the roof. A glass-enclosed shower extends to a private courtyard. Other outdoor features include a pool, fountain, and fireplace.

energy efficient." According to the architects, each building they design needs to perform without hi-tech gadgetry, yet be prepared for future systems. "Even if a client can't afford solar panels or other such systems, we want that future conversion to be possible for them," says Ibarra.

The two lament how, especially in a fragile environment such as Arizona, so many oversize, inefficient homes are built without a second thought. "The crutches that are put in place make it inexpensive and easy to do the wrong thing," says Ibarra. To oppose that state of mind, the two are involved in city planning in Tucson, and are moving their focus from residential projects to more public ones. They were also chosen by the Scottsdale Museum of Contemporary Art to design an installation for the Border Film Project, which is dedicated to simplifying the complexities of immigration. As they expand their scope of work, Ibarra and Rosano say they'll take a collaborative approach. "We want to stay hands-on, but we do feel like we can handle more," says Ibarra, "and we'll always team up with people who know the place." *Ingrid Spencer*

Downing Residence, Tucson, 2003

The living, dining, and kitchen areas of this 3,500-square-foot home are situated beneath an upward-sweeping roof that helps to maximize views of the city on one side and mountains on the other. A library balcony hangs over a two-story gallery space that overlooks the valley below.

Ibarra Rosano Residence and Studio, Tucson, ongoing

The firm's first foray into design build, this 2,200-square-foot ho with a 650-square-foot studio serves as the firm headquarters and a laboratory for experiment ing with new ideas, forms, space and materials.

For more photos and projects by Ibarra Rosano Design Architects, go to ***archrecord.construction.com/archrecord2/*****.**

Work

The word *architect*: A question of title

Architect and Aspen city council member Jack Johnson.

Many unlicensed architecture-school graduates have a difficult time describing their jobs to family, friends, and others outside of the profession. Though classified by the profession as interns, their work is remarkably similar to the kind of work they would be doing if they were licensed. Yet the title of architect is restricted by state licensing boards to refer only to currently licensed practitioners. The challenge is that, to most people outside of the profession, *intern* doesn't resonate as a proper title for a graduate with a professional degree in a respectable full-time job—especially one a few or more years out of school.

Based on a ruling from a recent court case in Colorado, this confusion may be resolved, at least for casual conversations and other noncommercial situations. Jack Johnson, 42, was an architecture graduate running for the Aspen city council. During his campaign, he referred to himself as an architect in various public forums, though he was also careful to explain that he was not a "licensed architect." A political rival filed a complaint with the Colorado Board of Examiners of Architects, and the board issued a formal cease and desist order to Johnson, demanding that he stop referring to himself as an architect or face a $1,000 fine or six months in jail. Johnson instead sued the board for violating his First Amendment rights, and the board eventually rescinded its order. However, Johnson pursued th case in order to fully resolve the issue, and in May 2006 the Colorado Dist Court ruled in his favor.

Specifically, the court held that the board's action was "far more restric tive than it needed to be in order to protect the interests which were the boa charge." When asked why he sued the board rather than simply stop referrin himself as an architect, Johnson said, "The board's position was wrong. The board refused to make a distinction between commercial and noncommerci speech, and I wanted to make it clear that there is such a distinction and tha the board does not control noncommercial speech."

Johnson also won his election and now sits on the Aspen City Council. regularly draws on his architectural education and experience to inform a va ety of public policy issues in Aspen, including the redesign of the main road entering the city, and affordable housing in this resort town. "As an architec influencing public policy, I would have expected the board to encourage me rather than to censor me," said Johnson. While Johnson agrees that licensin boards should regulate the use of the title, he also agrees with the court tha outside of commercial transactions, unlicensed individuals have an expansi constitutional right to use the word *architect* as they see fit. *Casius Pealer*

For more information about Jack Johnson's case, including his direct contact information for individual questions, visit ***archrecord.construction.com/archrecord2/*****.**

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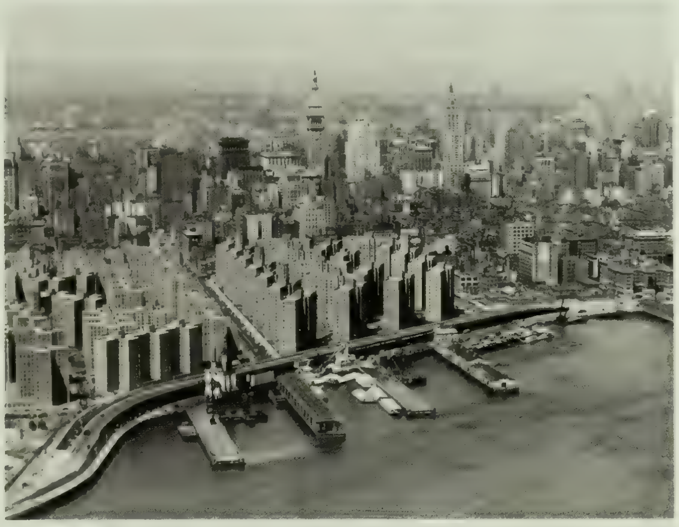
Hollowing out the middle: What's lost when a housing enclave is sold

Critique

By Michael Sorkin

ll the concepts dear to
dernist urbanism, perhaps the
st uniformly reviled is the notion
towers-in-the-park." This idea,
ch descends from Le Corbusier's
iant City plan (a late spawn of
marriage of rationalism and
toralism that produced its imme-
e predecessor, the Garden City),
eavily identified with the failures
rban renewal and public hous-
with a deadening, penitential,
ronment, the very antithesis of
good, diverse, city. The most
sed and devastating attack on
planning was surely that of
Jacobs, whose advocacy of the
and variegated ecology of urban
hborhoods like Greenwich
ge or Boston's North End forms
substrate for the way most of us
about successful cities today.
Among the places that came in
acobs's most seething oppro-
n were Stuyvesant Town and
r Cooper Village—adjacent
lopments covering 18 square
s on the East Side of
hattan—which she excoriated
eir uniformity and deadly
ts on the lively, economically
d life of the street, her gold
lard for urbanity. To be sure, the
nx of 110, redbrick, minimally
led slabs, designed by Irwin
n and Gilmore Clarke in 1947,
k like a typical—and, at
0 units, especially enor-
—"project," and Jacobs's
vations about their lack of commercial activity remain largely valid. But the well-maintained and very green enclave is beloved by its residents, many of whom have lived there for years. And, in a huge city configured as a mosaic of neighborhoods and districts, its exceptionality, its interruption of the grid, is more than supportable; it is downright pleasant. New York has many such successful enclaves of difference—including Forest Hills, Sunnyside Gardens, and Washington Square Village—that suggest the city can be enlivened by occasional large-scale departures from the short-block default.

Stuyvesant Town and Peter Cooper Village were the vision of Jane Jacobs's arch-nemesis, Robert Moses, and embody the sweeping, authoritarian way of doing business that allowed him to remake the face of the city like no one before or since. Moses conceived the project in 1943 as a home for veterans returning to a housing-strapped city, and turned to the Metropolitan Life Insurance Company to build it—a classic "public-private partnership." MetLife was already a major developer of large urban housing, including the Parkchester complex in the Bronx (Clavan and Clarke were on the design team here, too), constructed from 1938 to 1942 for 40,000 residents. Both projects were aimed at middle-class families, and the historian Samuel Zipp has described them as "urban Levittowns." While this is an apt comparison in terms of their social and formal homogeneity and their ambition to tackle big problems at big scales, there is one crucial difference: Parkchester, Stuyvesant, and Peter Cooper were rentals—in a city that regulated rents.



Stuyvesant Town and Peter Cooper Village, as seen around 1950 (above), have served as a haven for the middle class, but that role is now in question.

A sweet deal for MetLife

Moses, however, offered MetLife a sweet deal. Not only would the city acquire all the land via eminent domain and throw out the 3,000 poor families living in the "Gas House" neighborhood, it would "de-map" and convey all the streets on the 80-acre site (one tenth the size of Central Park) to MetLife. Moreover, the city agreed to freeze property taxes for 25 years at the value of the expropriated land before development. Finally, it turned a blind eye to MetLife's exclusionary practices, which banned blacks, unmarried couples, and single parents, until the issue was forced by protests and legal actions in the '50s and '60s. The story was the same at Parkchester, segregated until the city's Human Rights Commission intervened, leading to its sale in 1968 to Helmsley-Spear, which, in stages, converted the complex to cooperatives.

This last bit of history is in the process of repeating itself. In August, MetLife put Stuyvesant Town and Peter Cooper Village on the block, prompting a frenzy of interest from a range of potential buyers, from real estate companies to investment banks to the usual unidentified financiers from Qatar. While MetLife's announcement was greeted by the real estate community with salivation and lust, it struck fear into residents of the complexes. Residents have been growing anx-

ibuting editor Michael Sorkin
director of the urban design
m at City College of New York.

ious about the sale of the property for several years, sparked by a $300 million upgrade undertaken by MetLife that allows the company to raise rents more than it would have, and newly vigorous efforts to get rid of tenants not listed on leases. Anxiety focused on rent: About three quarters of the apartments in the two developments are protected by the city's rent stabilization law, which limits increases to a level fixed annually, presently in the neighborhood of 4 percent. The law covers about a million units in the city and is a defining factor in shaping New York's demographic character and a large part of the reason we still have a middle class. Loss of protection would be a disaster.

Losing controls

Apartments can now be removed from the stabilization regime under two circumstances. When monthly rent passes a threshold of $2,000—via regular mandated increases or pass-along expenses for "major" improvements—any vacated apartment leaves the system of controls and floats to the market rate. And tenants of apartments with rents over $2,000 face a means test: Those with incomes in excess of $175,000 for two consecutive years lose their protection, and their apartments permanently exit regulation. Due to such "natural" processes, 27 percent of the units in Stuyvesant Town/Peter Cooper Village now rent at market rates, which currently top out at $3,800 to $5,850 for the biggest units versus $1,500 to $1,600 for those still stabilized—two very different "markets."

Recognizing the immense potential in this difference, bidders surely calculated actuarially, examining the age and income of tenants, the frequency of turnovers, the number of apartments nearing the decontrol threshold, the possibility of further "improvements" to drive up rents, the prospects of enticements or harassment to stimulate turnover, the number of young couples in small apartments likely to have children and move on, and the vigor of the market in general. The strategy is to get apartments destabilized, converted to condos, and sold to tenants as quickly as possible. The arithmetic looks promising indeed. According to a real estate investor quoted in *Crain's*, "Rent stabilized apartments in New York City are one of the best risk-adjusted real estate investments in the country." The sales literature put out by CB Richard Ellis, MetLife's marketer, hypes the complex (already festooned with banners advertising "Luxury Apartments") for its potential to become the "city's most prominent market-rate master community," and predicts that by 2018 fewer than 30 percent of the units will remain stabilized.

Manhattan—where the middle class is the smallest by percentage in the country and the income gap the largest—may be the extreme case. But in city after city across America, it is more and more difficult for the core of our citizenry—teachers, nurses, fire fighters, service workers, technicians, and cops—to find decent and convenient places to live.

The Census Bureau recently reported a dramatic national rise in the burden of housing costs. In New York, over half of the city's residents pay more than 30 percent of their incomes for housing, and percentages are soaring across suburbs and cities nationwide, with the biggest crunch in Southern California. Recognizing this crisis, the Bloomberg administration has declared its intention to create or preserve 165,000 "affordable" units by 2013 and is pursuing the goal with some success via a variety of subsidy arrangements, including zoning bonuses, tax exemptions, forgiven interest on city loans, and other indirect strategies. But, as the scale of the Stuyvesant Town/Peter Cooper Village sale makes dispiritingly clear, market forces are winning invisible hands down and the net decline in affordable apartments is only accelerating.

Tenants organized—with labor-union and local political backing—to bid on the project themselves, with an offer of $4.5 billion and a proposal that would have retained 20 percent of the apartments as affordable rentals and sold another 20 percent to tenants at below-market rates. Their case was greatly bolstered by the tremendous public subsidy that supported the project in the first place (although MetLife claims that its 25-year legal obligation has long since expired). It also reinforced the original idea behind the project: the provision of rental apartments for middle-class residents at a time of shortage. However, while there should be no question of tenants' rights to remain in their homes free from fear of displacement by spiking rents or coerced purchase, even a successful bid would, like any other condo conversion, eventually have transformed Stuyvesant Town/Peter Cooper Village into a largely luxury estate. Such a fate would have simply delayed by one cycle the departure of the middle class—and the evisceration of the rental market—and reinforced a vision of the city as a place with a small middle class dependent on some form of affirmative action for its survival.

Who gets subsidized?

Clearly, unfettered, laissez-faire capitalism is not capable of providing decent housing for everyone, nor of making the kinds of locational decisions that conduce the cities of diversity and mix extolled by Jane Jacobs. If the market must be regulated to assure public benefits—as it is, one way or another, in virtually every sector of the economy—the question becomes how and where to apply public intervention. As an idea, subsidy is a constant—benefit and equity are the variables. The suburbs, symbol of the American dream of private property "rights," were built on the back of gigantic tax-payer subventions in the form of cheap loans from the FHA, the deductibility of mortgage interest, the accelerated depreciation of commercial devel- ments, and the vast provision of public infrastructure—from sewer lines to Interstates—in arrangements that are, compared to the efficiency of such systems at urba densities—disproportionately exp sive. New York offers enormous tax and other benefits to corporat operators—from Goldman Sachs Barry Diller—to encourage them build in the city.

As a culture, however, we prefer our subsidies to be diffuse oblique, disguised as incentives whenever possible, rather than r ulations or "handouts." But the complex of vouchers, tax breaks, zoning bonuses, and infrastructu funding is subsidy all the same a it just isn't doing the job for thos who need help the most. Claims that the real problem lies with ren regulation are simply disingenuou It is time to face up to the magnitu of the housing crisis in the U.S., wh includes a squeeze on both middl class incomes and on immigrants packed illegally four to a room in urban apartments and suburban basements. It is time for governm at all levels to intervene massive and directly. There's no shortage strategies, and they all require su sidy. The question is to whom the subsidies go and for what.

In October, Tishman Speyer Properties and the Blackrock inve ment bank bought Stuyvesant Town/Peter Cooper Village for $5. billion, the largest real estate dea U.S. history. The city administratio to the disappointment of many, stayed on the sidelines. "MetLife owns it, and they have the right t sell it," said Mayor Bloomberg. On his deputy mayors rejected the te ants' sought-after tax subsidies a an inefficient use of public funds. day after the sale, the city announced a purportedly more e nomical plan to build several thousand affordable units across East River in Queens—a worthy p ect, but not enough to staunch th loss of New York's affordable hou nor slow the transformation of Manhattan into the world's large gated community. ■

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Beyond buildings: Making an impact on cities and society

Books

sign Like You Give a Damn: hitectural Responses to manitarian Crises, *edited by hitecture for Humanity meron Sinclair and Kate hr). New York: Metropolis oks, 2006, 336 pages, $35.*

ie seven years since iitecture for Humanity was ided in response to the housing s in Kosovo, the tiny humanitar- design organization has held petitions for transitional housing mobile health clinics to combat S in Africa, helped prepare a nstruction plan for a village and l temporary schools in Sri Lanka ' the 2004 tsunami, encouraged itects to think creatively about sing social problems, and accu- ited a great deal of knowledge it disaster relief.

Now, architect Cameron air and journalist Kate Stohr, iusband-and-wife team who he organization out of their hattan studio apartment for : of its existence (and now run it from slightly larger digs in Sausalito, California), have published their findings in this appealingly legible, richly illustrated, affordable volume. They make no attempt to gloss over their own inevitable failures. In fact, they use their experience to explain the crucial role that local politics must play in disaster relief. They admit how hard it is to get anything built in the developing world, home to 98 percent of the 211 million people affected by catastrophes.

The authors emphasize the importance and difficulty of working with local planning groups and citizens, drawing on local traditions, using indigenous materials and building techniques, creating replacement housing in situ, and employing the people slated to live in the community and involving them in the act of building.

One of the best features of the book is Stohr's succinct history of temporary and low-cost housing from the San Francisco earthquake of 1906 to the present, including efforts by Le Corbusier, Buckminster Fuller, William Levitt, Hassan Fathy, Fred Cuny, and Samuel Mockbee. Stohr also describes the (mostly out of print) publications that contain these builders' combined wisdom. Although some of the images in the introductory chapters are too small to tell the stories, the characterful photographs describe an amazing collection of domes, umbrella tents, yurts, and huts made of every imaginable (and sometimes unimaginable) material, as well as tidy houses, social centers, schools, water-treatment devices, and sanitation facilities—everything people need for habitation. Even politics is discussed with wit and wisdom, so the reader ends up informed, inspired, and ready to enter the fray.

Jayne Merkel

New Design Cities: Antwerpen, Glasgow, Lisboa, Montreal, Saint-Etienne, Stockholm, Times Square, *under the direction of Marie-Josee Lacroix and with the participation of Francois Barre, Saskia Sassen, John Thackara. Montreal: Commerce Design Montreal, 2006, 328 pages, $32.*

What actions and events helped position six midsize cities plus Times Square as "design cities?" In search of answers, Commerce Design Montreal, whose annual design contests have greatly improved the appearance of commercial Montreal, conducted a 2004 symposium, the springboard for *New Design Cities*.

The book offers a thumbnail sketch for each city and Times Square, including a brief history; lists of outstanding designers, design strategies, design institutions, and events; and essays by, or interviews with, city officials and design honchos. They address such questions as, How can design quality and talented designers contribute to the competitiveness of cities? How can cities encourage design quality? How can the development of the design sector be stimulated? Most of the authors agree that it is more important to invest in people than economic projects, that vigorous criticism of urban regeneration is vital, and that the provision of physical spaces goes hand in hand with such initiatives as exhibitions, public art projects, design magazines, lectures, readings, polemics, and so on.

Taking a broader view are theoretical essays by three leading thinkers on cities. Saskia Sassen, the University of Chicago sociologist, addresses the quandaries created when the "meanings and roles of architecture and urban design centered in the older traditions of permanence are irrevocably destabilized by digital networks, acceleration, massive infrastructures for connectivity, and growing estrangement." John Thackara, director of Doors of Perception, an international design and innovation

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avec la participation de
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JOHN THACKARA

group, notes that despite globalization, most businesses operate in a highly localized geography and that local conditions and trading patterns, skills, and culture are critical success factors. He warns, "We have to be careful about this business of turning all [cities] into perfect little places." Similarly, Francois Barre, founder of Paris's Centre de Creation Industrielle and a past editor of *Architecture d'Aujourd'hui*, counsels against merely "furnishing" the city.

The book is bilingual, sometimes awkwardly so. Translations of French texts on Montreal and Saint-Etienne, France, come only at the back of the book. And you won't know there's an English version of Barre's essay unless you flip to the book's very end, past the authors' bios. The organization (or design) of *New Design Cities* is confusing, but bear with it; the book is worth the trouble. *Andrea Oppenheimer Dean*

Design City Melbourne, *by Leon van Schaik, photography by John Gollings. New York: Wiley, 2006, 288 pages, $70.*

Barcelona in the 1980s; the Dutch "Randstat" (including Amsterdam and Rotterdam) in the '90s; then briefly, Antwerp and Brussels; and in the first decade of the 21st century, so writes Leon van Schaik, Melbourne is the top design city.

That may be an exaggeration. Or perhaps it wasn't when van Schaik was writing his book. Inarguably, Melbourne—prim, Protestant, and largely elderly when van Schaik arrived in 1987 to head the Royal Melbourne Institute of Technology's architecture faculty—is today Australia's most highly educated, youthful, diverse, and liberal city.

In *Design City Melbourne*, van Schaik asks what makes cities reach the top of the design pyramid and what makes them lose their standing. Hot cities cool, van Schaik argues, when patrons and clients start collecting architectural projects by international celebrities at the expense of cultivating local creativity. "Nothing, despite popular belief, is ever kick-started in the culture through imports," he writes. Conversely, he tells us, "The story of a design city is the story of when and how it embraces its own ideas and works through them to generate local cultural capital." The author writes that the emergence of Melbourne's minorities (Greeks, Italians, Dutch, Vietnamese, Maltese, Catholics, Jews, and others) allowed the city to forge a radical Australian identity "from what is here, not from nostalgia." His book details how architecture emerged hand in hand with other arts, design, and crafts and with the rise of a local intelligentsia.

The author lists three requirements for quick-starting local culture: committed patrons; architects who adjust internationa canons to meet their own ambitions; and critics and curators wh help practitioners understand the process by which talent becomes mastery and a platform for innovation. Van Schaik, as a dedicated client, booster, and critic of local designers, certainly played an

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important role in his adopted city's transformation, but he could have made the point with less self-congratulation.

His book is a worthy ambassador for Melbourne design. It beautifully showcases the work of more than 20 Melbourne architects—including Peter Corrigan, the dean of Melbourne architects who legitimized and tweaked Australia's suburban forms, and Greg Burgess, whose interest in organic forms has led to distinguished work for indigenous communities. *A.O.D.*

Victor Gruen: From Urban Shop to New City, *by Alex Wall. Barcelona: Actar, 2005, 244 pages, $46.*

Victor Gruen keeps getting rediscovered. Recently, there's been M. Jeffrey Hartwick's 2003 biography, *Mall Maker*; then a feature-length profile in *The New Yorker* in 2004. Now Alex Wall, in *Victor Gruen: From Urban Shop to New City*, gives us a more focused account, and something else too: the case for Gruen's rehabilitation.

From middle-class comfort, Gruen (who was born Grünbaum in 1903) moved early and easily into the artistic milieu of Vienna between the world wars. His first storefront designs showed a facility for Moderne sophistication, brightened by theatrical displays and clever lighting. In 1938, he decamped for the United States just ahead of the Nazi Anschluss. It was on the West Coast that he found his calling: By combining innovative retail techniques with an intuitive grasp of the American automobile suburb, Gruen became the premier architect of the indoor shopping mall, producing 44 prior to his retirement in 1975.

Wall's chief interest is in Gruen's role as the exponent of a novel type of urban space, a "Cityscape Landscape" (the title of a 1955 Gruen article) of new towns, ring highways, and organized industrial and commercial centers. Gruen, the consummate salesman, aggressively promoted these grand strategies for the renewal of existing urban spaces and the creation of new ones up to his death in 1980. By the end, though, his increasing disenchantment with the kind of suburbanization to which he himself had contributed led Gruen to disown the malls, saying in 1978, "I refuse to pay alimony for those bastard developments."

Wall would like us to understand Gruen's career as one concentrated effort to organize the emerging urban form. Formerly of Rem Koolhaas's Office of Metropolitan Architecture, Wall knows how to wow the reader with copious photographs, color-coded text, Gruen's own charts and renderings, and a stunning bibliography. The book re resents a yeoman effort and leave the reader with the difficult task o squaring the changeable Victor Gruen with himself and deciding which, if any, of his ideas square with the present urban condition. *Ian Volner*

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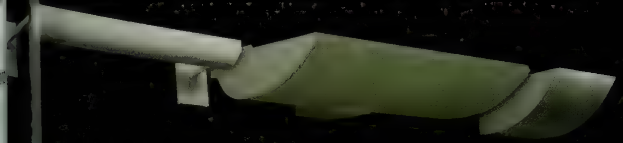

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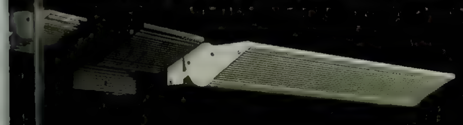

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After the FLOO

Building on HIGHER GROUND

An exhibition presenting proposals for replacement housing and redevelopment in **New Orleans, Louisiana** in the aftermath of **Hurricane KATRINA**

The official U.S. participation in the 10th International Architecture Exhibition has been organized by ARCHITECTURAL RECORD *and is presented by the Bureau of Educational and Cultural Affairs of the U.S. Department of State, in cooperation with the Peggy Guggenheim Collecti Venice, and the U.S. Consulate General, Milan.*

Additional generous support for the exhibition and accompanying programs has been received from the American Institute of Architects

On the Ground in Venice: The 10th International Architecture Biennale

Exhibitions

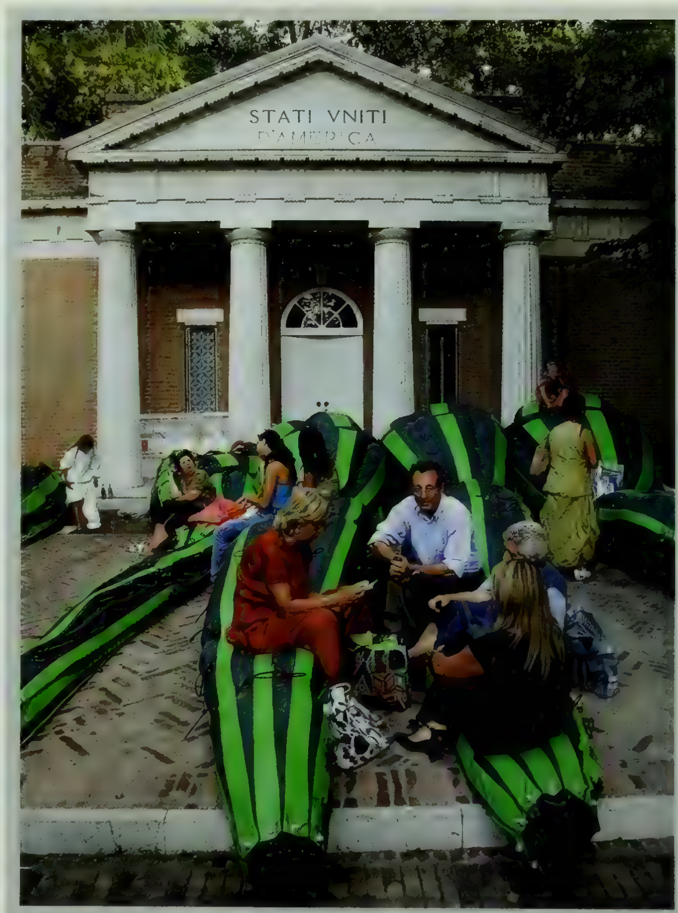
on hearing that Richard Burdett, ector of the 10th International nice Architectural Biennale, had nounced “Cities, Architecture, d Society” as the theme for 06, ARCHITECTURAL RECORD *cided we had to be there. rking with the Department of ucational and Cultural Affairs of U.S. Department of State (as had in 2002 and 2004),* RECORD *unted a show for the U.S. ilion, entitled,* After the Flood: lding on Higher Ground. *The ibition, which opened September and is closing November 19, uses on New Orleans and the Gulf ist, beset by the largest natural ister—Hurricane Katrina—this ntry has ever experienced.*

The subject matter seemed a ural: We had already organized nternational competition for acement housing in New eans with Tulane University's ool of Architecture in the spring. 10 winners were featured in June 2006 issue [page 112] on our Web site. For the ce exhibition, we asked the ners—composed of practicing itects and students for multi-ily housing, and only students he innovative single-family ses—to elaborate on their s, originally submitted as wall els. To present the work in a er context, we called on curator stian Bruun (aided in the instal-n design by Jens Holm), plus maker and photographer Neil ander and photographer ael Goodman, and once again, ne University, to help flesh out the show with pertinent material. A choice list of committed architects donated their own money to ensure that the pavilion opened with the proper range of solutions assembled and presented. The American Institute of Architects added a live seminar to the proceedings. Commercial sponsors, particularly AutoDesk, rounded out our list.

If you have not made your way to Italy before the show closes, RECORD *has documented it, in print and online, and invites you to take a virtual tour. Ciao. Robert Ivy, FAIA*

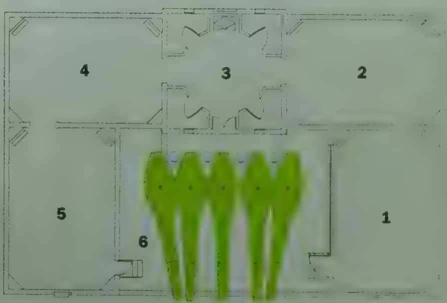
Instead of milling around the way they do in front of other national pavilions, visitors to the exhibition at the United States Pavilion lounge languidly on what seem to be big stuffed zucchini. Since the show, *After the Flood: Building on Higher Ground*, is devoted to proposals for replacement housing in New Orleans after Hurricane Katrina, the lounging summons the spirit of New Orleans, fondly called (before the hurricane) “the Big Easy.” The installation is actually a specially fabricated absorbent Alluvial Sponge Comb designed by Anderson Anderson Architecture of San Francisco as a temporary stop-gap for the breached levees. (See page 62 for details). Here, the fingers of the comb provide a much-needed place to relax during the 10th Architecture Biennale.

Entering the U.S. Pavilion, viewers soon come to understand why nothing is easy in New Orleans anymore. Photographs of the destruction,



Relaxing on the Alluvial Sponge Comb at the U.S. Pavilion in the Giardini di Castello.

1. *Context*
2. *Katrina's effect*
3. *Katrina by satellite*
4. *Multifamily schemes*
5. *Single family/ future*
6. *Alluvial Sponge Comb*



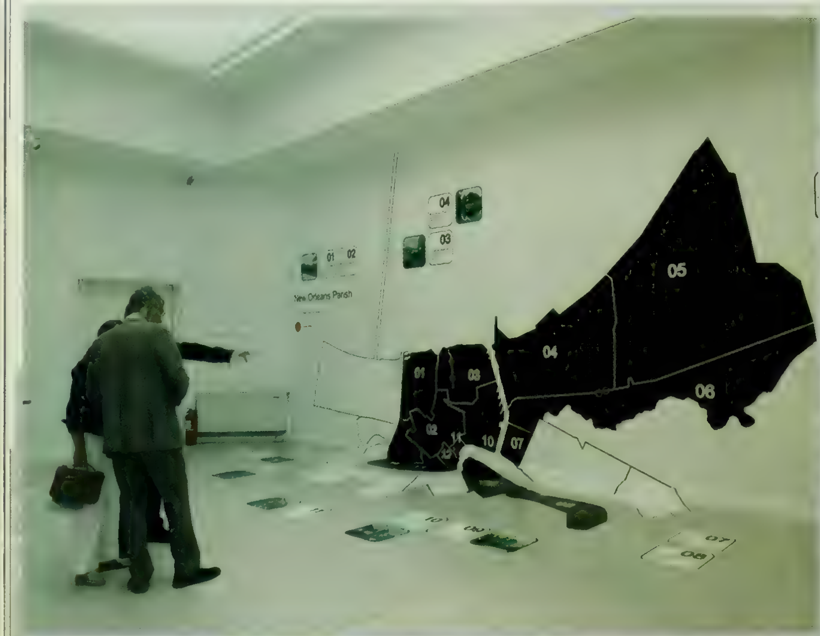
accompanied by charts and statistics, show what Hurricane Katrina wrought in August 2005, and help establish the context for the proposed replacement housing.

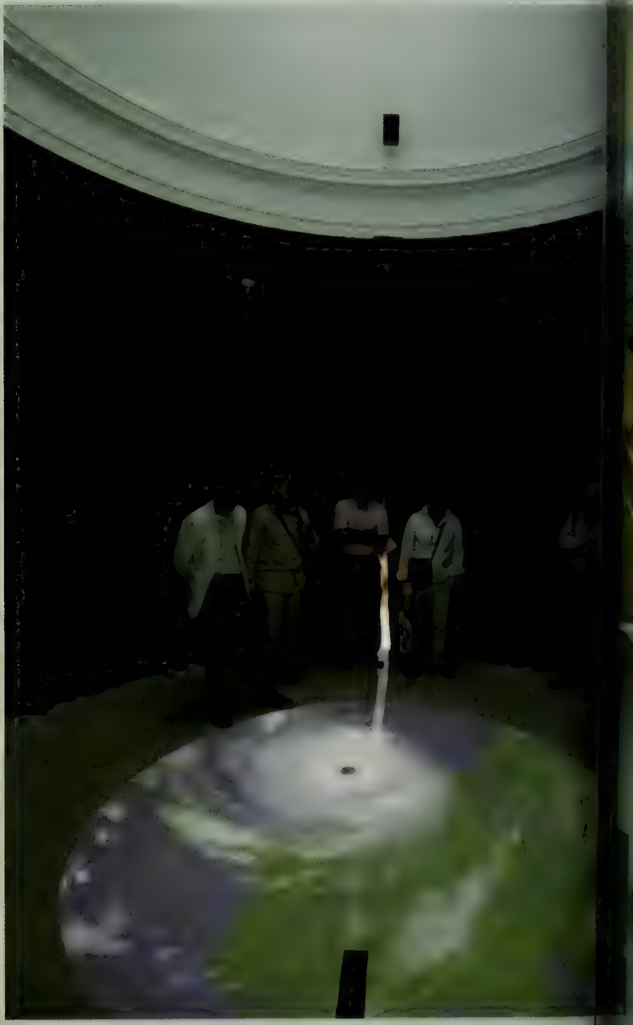
In the first room of the pavilion, a map of the city stretches from the wall onto the floor. It explains how each New Orleans ward fared in the flood, while noting the population and racial composition of each community. As is so well known, the poor and black suffered considerably more than other residents, more of whom live on high ground.

On the opposite wall of this gallery, a chart chronicles the history of New Orleans from its founding in 1718. Registering every hurricane, noting when the levees were built and repaired, and describing the racial makeup of the city in each period, Bruun and Holm show how disasters have changed the demographics of the city over time.

In the second gallery, Michael Goodman's aerial and close-up photographs and Neil Alexander's film clips and photographs present a vivid and chilling account of Katrina's destruction—the extent of loss of lif paths of the storm, and accumulate storm damage. Alexander's movie, *An Eye in the Storm*, will be release next year.

The awesome power of the hu ricane itself can be sensed by stepping into the circular rotunda in the middle of the pavilion, where fil footage from NASA's high-definition





The installation of the U.S. Pavilion, designed by curator Christian Bruun, with the help of Jens Holm, presents the socioeconomic background in the first gallery (top left). In the second gallery (left), photos and films illustrate Katrina's impact. A NASA satellite film in the rotunda (above) shows the storm moving to its target. In the fourth gall site, top) are m drawings of mu housing propo the fifth (oppo shows models family-house

tellite cameras is projected onto floor. It follows the path of Katrina that the visitor can watch it build between August 25 and August and experience the sense of ad that occurs when one knows advance what is yet to come.

An architectural response to the struction in the form of proposals new types of housing—multifamily and single-family—begin to emerge in the fourth gallery. Here, documentation of the damage is offset by models and drawings for rebuilding by winners of the housing competition organized last spring by ARCHITECTURAL RECORD and Tulane University's School of Architecture, which attracted 544 entries.

For the Venice exhibition, RECORD asked winners in each category to come up with more complete versions of their earlier schemes. Among the winners in the competition for multifamily housing, which was open to professional architects and students, is a horizontal slab tower with 160 units by Eight Inc., of San Francisco. It updates both Moshe Safdie's Habitat (1967) and Le Corbusier's Unité d'habitation of 1946–52, with both a prefabricated and sustainable emphasis.

Another winner, the San Francisco firm of Anderson Anderson Architecture, designers of the Alluvial Sponge Comb, displays its porously gridded housing scheme, Camel Back Shot Gun Sponge Garden, with plastic acrylic models. The proposals by three other winning firms or teams in the multifamily category, Workshop/apd of New York; Duong Bui, Erkin Özay, and Pars Kibarer, formerly of Harvard; and Justin Laskin and Kathleen Mark, of the University of Virginia, are illustrated by large wall displays.

In the fifth room, five models of the winning entries for the single-family-house competition, which was open only to students, were fabricated especially for the Venice exhibition by the winners themselves. The easy-to-build, elevated houses were designed by Michelle Jellison, of Montana State University; Amin Gilani and Josh Spoer, of the University of Texas, Arlington; Zui Lig Ng, of the University of Houston; and Mark D. Stankey and John A. Kucharski, of Montana State University. The fifth team, Kidduck Kim and Christian Stayner, both Harvard students, present their proposal for floating emergency modules with a whirring mechanical model where the cubes bob up and down.

On the other side of the gallery, Ila Berman, associate dean at Tulane, prepared *What Next?*, a graphic presentation covering two walls that illustrates a number of urban-planning and housing initiatives for rebuilding New Orleans.

Besides the drawings, physical models, computer models, and mock-ups of the winners, the pavilion contains a film clip from *Design/e2*, a television series on sustainable architecture, produced by kontentreal and sponsored by AutoDesk. It shows various approaches to the development of ecologically fragile areas, including an interview with engineer Werner Sobek, who discusses his research into sustainability. Another video demonstrates how AutoDesk's Building Information Modeling Software (BIMS) could be used to construct competition housing.

When the 10th Venice Biennale closes on November 19, *After The Flood: Building on Higher Ground* will travel to selected cities in Asia and the Caribbean in 2007 and 2008 under the auspices of the Bureau of Educational and Cultural Affairs of the U.S. Department of State.

Robert Ivy, FAIA, editor in chief of ARCHITECTURAL RECORD, served as commissioner of the U.S. Pavilion for the third time. Suzanne Stephens and Clifford Pearson, deputy editors of the magazine, acted as vice commissioners, as they did in 2004.

After the Flood was produced in cooperation with the Peggy Guggenheim Collection in Venice, Italy, and the U.S. Consulate General in Milan. It is sponsored in part by Autodesk, which also provided building information modeling software to winners of the replacement housing. ■

Venice Biennale Tech Backstory

Soaking Up the Mississippi

By Russell Fortmeyer

The architects at Anderson Anderson Architecture did not intend to build a levee.

However, the problem of placing the firm's conceptual multifamily scheme for the New Orleans housing competition on the flood-prone banks of the Mississippi River still lingered.

Phoebe Schenker, an architect with San Francisco–based Anderson Anderson, says the firm's solution, the Alluvial Sponge Comb—which buoyantly fills the courtyard of the U.S. Pavilion at the Venice Biennale—resulted from studying the functions of levees and reconstituting them in a less environmentally disruptive way. The manner in which levees slow water's current, accumulate silt, and provide natural habitats for fish inspired the firm to create perforated, tapered, fingerlike fabric instruments that could swell with water and bunch together to form a wall under flood conditions while otherwise remaining drained and out of sight.

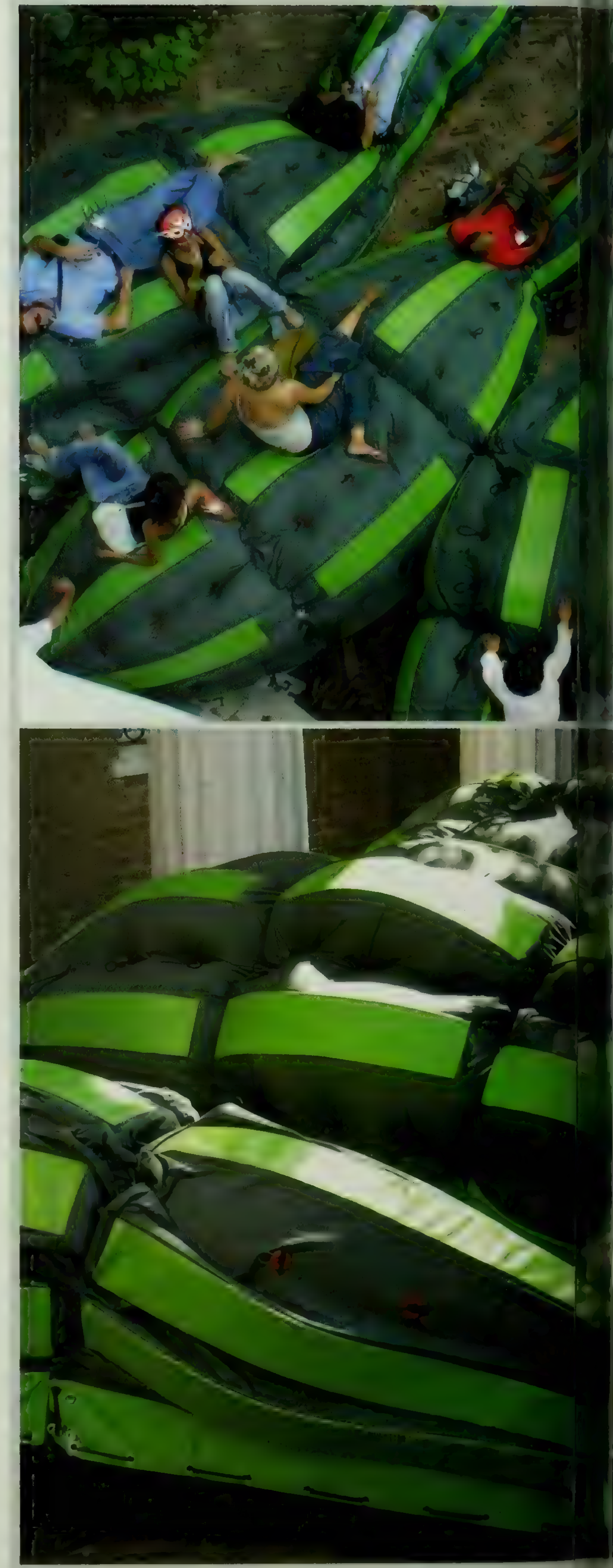
"In addition to this function, the parallel fingers allow for permeability to the water's edge," Schenker says, noting that under normal conditions, the comb allows wildlife to pass unencumbered. The firm's housing prototype formally mimics the serial layout of the comb, resulting in a unified design of site and project as a large filtering system for runoff, floodwaters, and wastewater. The opportunities for a building to contribute more to its environment than it consumes constitutes a key tenet of sustainability.

The sponge comb consists of three components: exterior skin, interior bladders, and harnesses. The bladders, made from 20-millimeter frosted PVC (similar to material for disposable diapers), combine within the harnesses to form the central functioning absorbent element. For the Biennale, the bladders were filled with air within the green vinyl-coated polyester exterior skin, which made the combs attractive lounge furniture for gallery-weary visitors.

The architects produced the sponge comb in nine weeks, from concept to final construction, before crating it off to Venice. Anderson Anderson worked closely with four subcontractors during the short fabrication process, as it often does with gritty construction details.

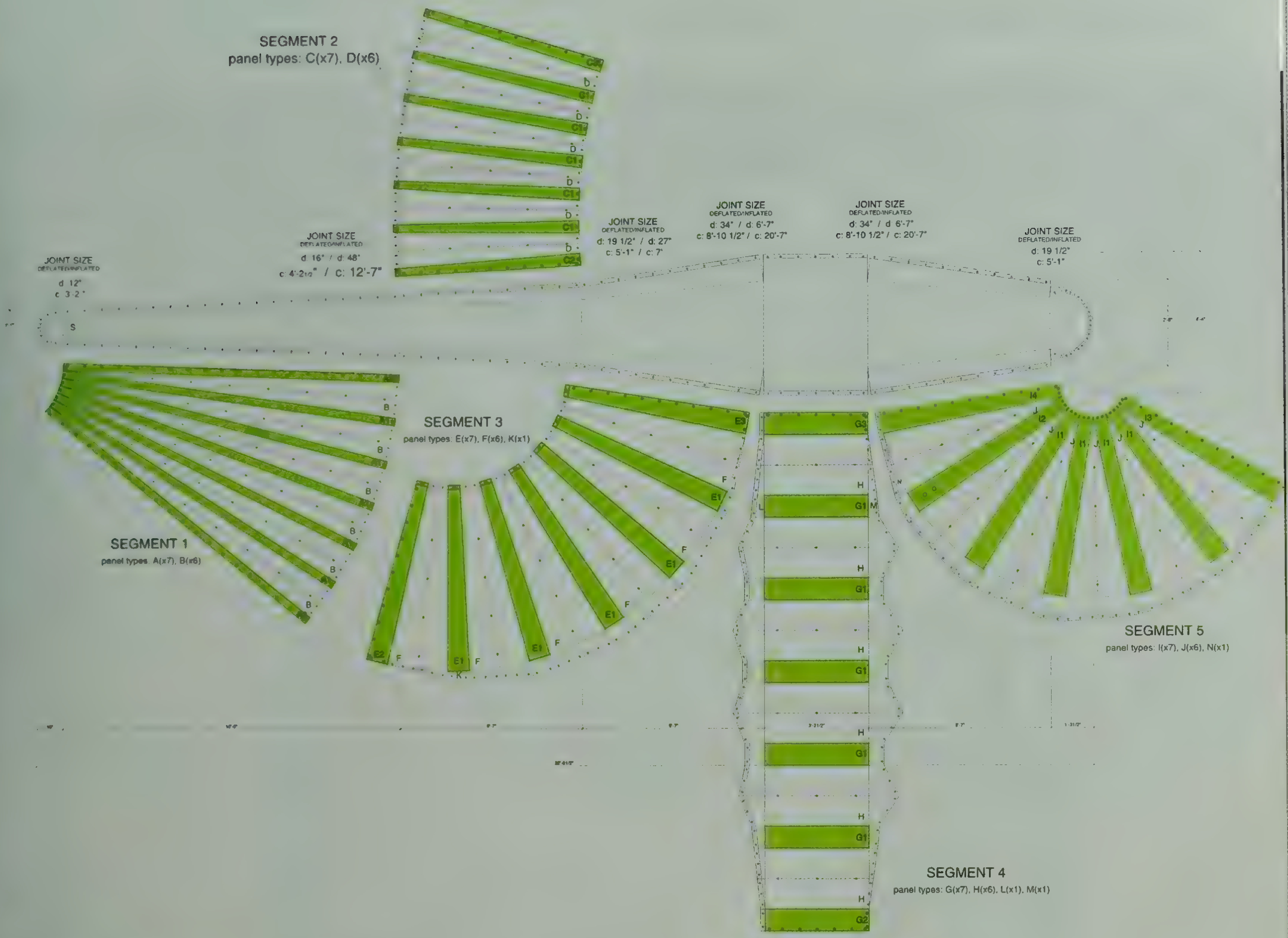
For example, the idea for the orange silicone gaskets, which seal the loop knots of the harnesses tying together the bladders and panels of the skin, developed when the architects were devising a detail for grommets. Schenker met the next day with the Bay Rubber Company in Oakland, which explained its fabrication techniques and options, sending her back to the office with fresh samples. "That sort of immediacy is rare in a typical building project," she says. "Projects like the sponge comb allow us to experiment directly with these processes, materials, and fabricators." ■

Anderson Anderson's concept sketch for the Alluvial Sponge Comb.



PHOTOGRAPHY: COURTESY ANDERSON ANDERSON ARCHITECTURE

Numerous steps were required to get the Alluvial Sponge Comb, designed by Anderson Anderson Architecture, to the U.S. Pavilion.



(1) Frosted PVC constitutes nine internal bladders. (2) The exterior skin includes gray ballistic nylon pleats made by Seattle Tarp Company. (3) The combs' pieces were sewn together in Seattle based on an AutoCAD pattern provided by the architects. (4) Harnesses bound the combs' elements. (5) Shock cord loops tied at each gasket. (6) The assembly was crated for shipping. (7) Students from the University of Florida assisted installation.

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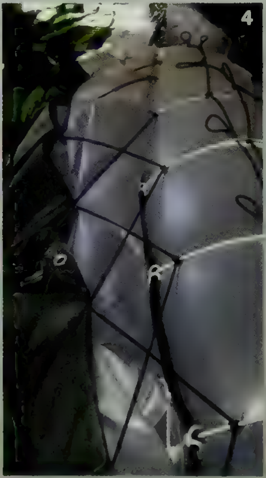
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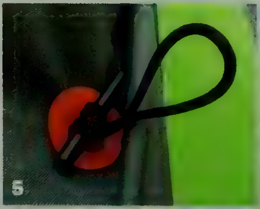
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Cities, Architecture, and Society Exhibition in the Arsenale

By Jayne Merkel

This year's Venice Architecture Biennale offers a quick trip to 16 of the world's fastest-growing cities instead of the usual survey of high-style buildings. And though the exhibition, organized by Biennale director Richard Burdett, shares the title *Cities, Architecture, and Society*, there isn't much architecture on view—or society either, for that matter. What you see in the gargantuan Corderie dell'Arsenale (cord factory at the old Venetian shipworks) are flyovers, maps, aerial photographs, video projections, street scenes with urban soundtracks, satellite images, and a mind-boggling collection of statistics, all about cities. There aren't even many stock architectural images, like those on postcards, to identify most of the cities, so they tend to flow together in the mind's eye as one enormous emerging mass of humanity.

And that is part of the point. The show is a wake-up call to architects, an entreaty to put your egos aside, forget the latest trend, and think about what is going on in the world: People are flooding into cities in unprecedented numbers. Half the world's population now lives in them, whereas in 1900 only 10 percent did; the percentage could top 75 by 2050.

All this, of course, is absolutely relevant to architectural practice, because with so many people moving around, a lot needs to be built. But, as the exhibition shows, much of it, particularly housing for the poor, is not being designed by architects, which may be just as well: The most impressive interventions here rely on indigenous traditions.

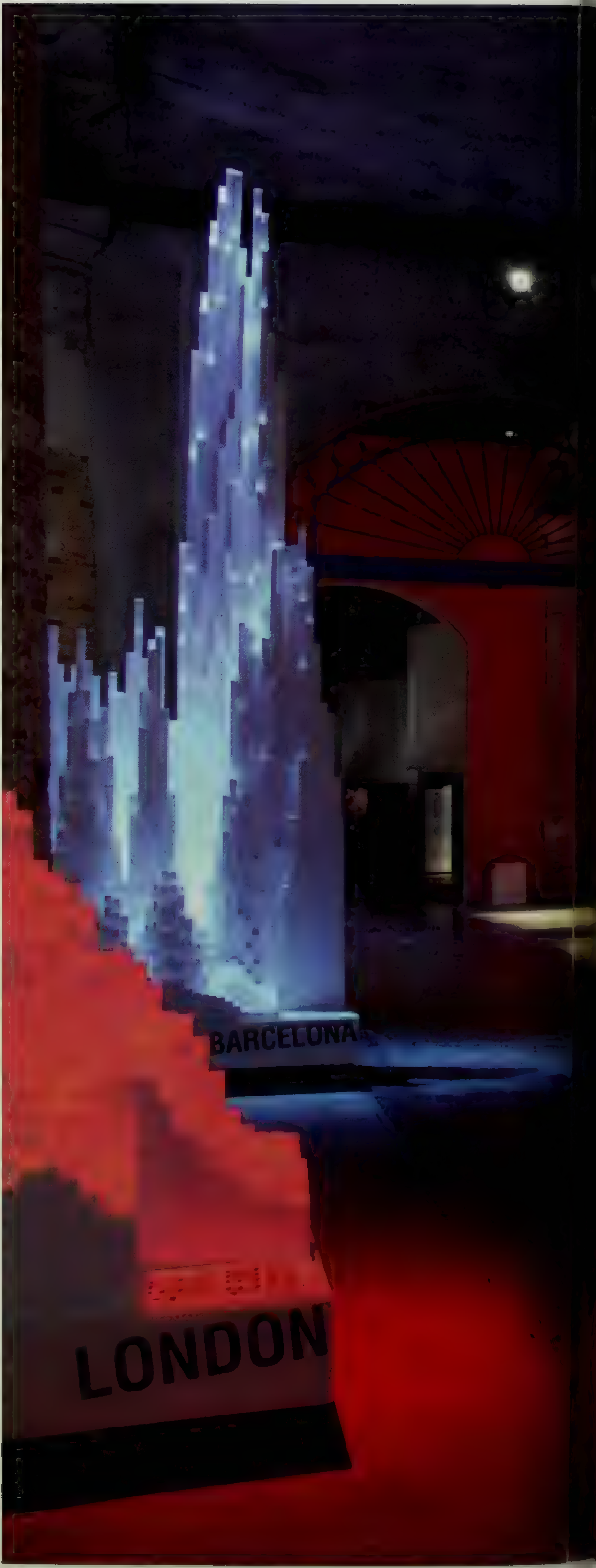
Burdett's show emphasizes the importance of density, public transportation, public space, and "good governance." Burdett, a professor of architecture and urbanism at the London School of Economics and an adviser on planning to Mayor Ken Livingston of London, has an understandably urbanistic approach. With this theatrical installation designed by Cibic & Partners, he hopes to change priorities here, not prescribe solutions.

Because the sections on each of the 16 cities highlighted were prepared by people who live in them, they show what the locals want the world to see. In the New York City section, for example, computer renderings present new parks and the embryonic arts district near the Brooklyn Academy of Music. Texts laud the first competition for low-cost housing in many years, but skirt the fact that many more multimillion-dollar dwelling units are being built in Manhattan than affordable ones.

The most memorable part of the show in the tall, dark, 900-foot-long Corderie is the room that allows viewers to compare the cities by describing them with stalactitelike models of each one's density. Here, you can see at a glance that Cairo and Mumbai (formerly Bombay) are four times as dense as New York. Though the peaks and valleys in the models show degrees of density at a glance, they don't depict the actual architectural or topological heights and lowlands—physical factors creating desirable density.

The problems of density and transportation that Burdett and his colleagues have put on the table may be too complicated for the exhibition format. It is a good thing that the show is accompanied by a massive, 378-page catalog that contains not only a lot of pictures but essays by Burdett, Saskia Sassen, Robert

Jayne Merkel is the author of Eero Saarinen *(Phaidon, 2005)*



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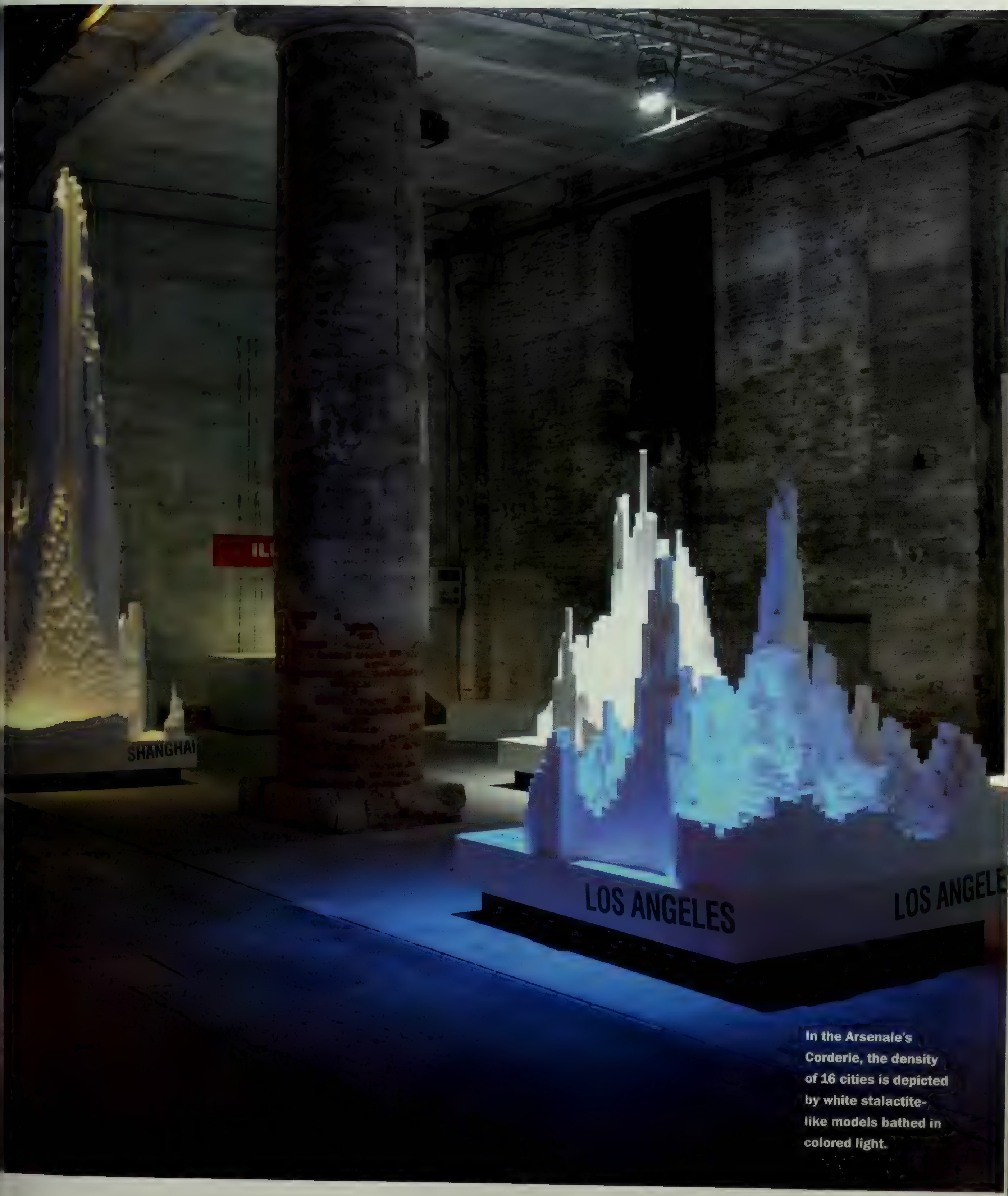
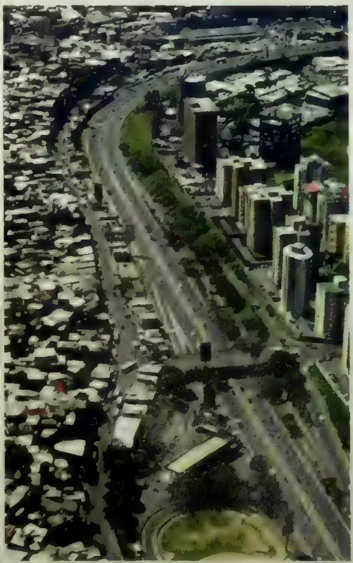
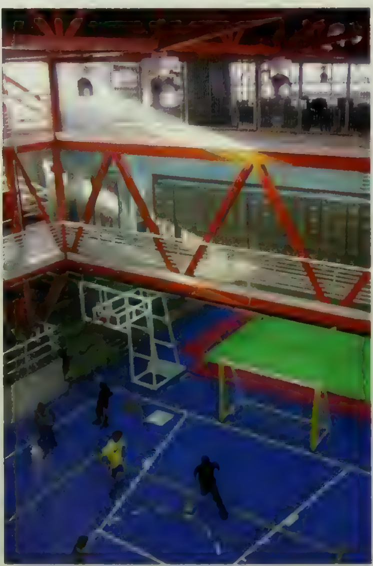


In the Arsenale's Corderie, the density of 16 cities is depicted by white stalactite-like models bathed in colored light.





Bruegmann, Norman Foster, Zaha Hadid, Jacques Herzog, Rem Koolhaas, Denise Scott Brown, Richard Sennett, and other architects and urban thinkers, since there is much too much on the walls to assimilate in several days.

Displays of urban research done by various institutions can be found in the Italian Pavilion of the nearby Giardini di Castello, the gardens where the national pavilions are located. But there, 50 more exhibitions clamor for attention. The bedraggled visitor longs for a single idea or two, clearly presented.

To complicate things further, some information on the labels in the Corderie is at odds with that in the catalog, proving that there are various ways to calculate population, land area, density, and everything else.

One of the most intriguing displays shows rail links and other transportation connections between various cities through electronic maps. Their routes visibly expand to show how they are expected to develop, since connectivity is crucial to the global economy.

Housing, the show makes clear, is the other really pressing issue now. Some of the most encouraging—and architectural—news comes from, of all places, Caracas, where photographs show the sprawling, irregular barrios cobbled together by the poor on a hillside just across a road from the tall, "formal" rows of traditional apartment towers of the middle class. The contrast is striking.

But here, there is progress. Alfredo Brillembourg and Hubert Klumpner, young architects who graduated from Columbia University's Graduate School of Architecture in New York and practice in Caracas as Urban Think Ta have built colorful, curvaceous, el vated pedestrian bridges in the barrios to replace muddy foot pat And they have designed a multist prefabricated "Vertical Gym" with footprint of a basketball court and different recreational facilities on every floor.

The exhibition texts emphasi the important role government pl in planning, but not all well-gover societies build well, and some ba ones build beautifully, as is indica by an ancillary exhibition of beau southern Italian "Stone Cities," m of which were built during the Fascist years.

Generally, the widely shared wisdom imparted by the show ru absolutely counter to the sprawli single-family, exurban growth that still the norm in the United States and being copied in the Third Wo One map shows how much more energy Americans consume than people anywhere else, largely because of the automobile. And yet, as *Design/e2*, a public television program on sustainable des at the U.S. Pavilion, points out, New York City is "one of the mos efficient ecosystems in the world because its citizens live close together and walk, bicycle, or tak public transportation to work."

Display after display at the Arsenale suggests that use of the private car must play a much smaller role in transportation. Richard Sennett, commenting on the Biennale, predicted in *Buildin Design* that if oil supplies evapor and air-conditioning is rationed, t burgeoning southwestern U.S. citi will shrink even faster than those the northern U.K. and East Germa

Both seeing the show at th Architecture Biennale and readi its catalog provide food for thoug If you must choose, go for the book. Ideas about economic equ energy, and access can only be posed—not digested—in the ex bition format, even if they pinpoi the foremost issues today.

Cibic & Partners designed the Arsenale exhibition (top). In Caracas, a road divides the barrios from high-rises (far left). Urban Think Tank, in Caracas, created a "Vertical Gym" (left).

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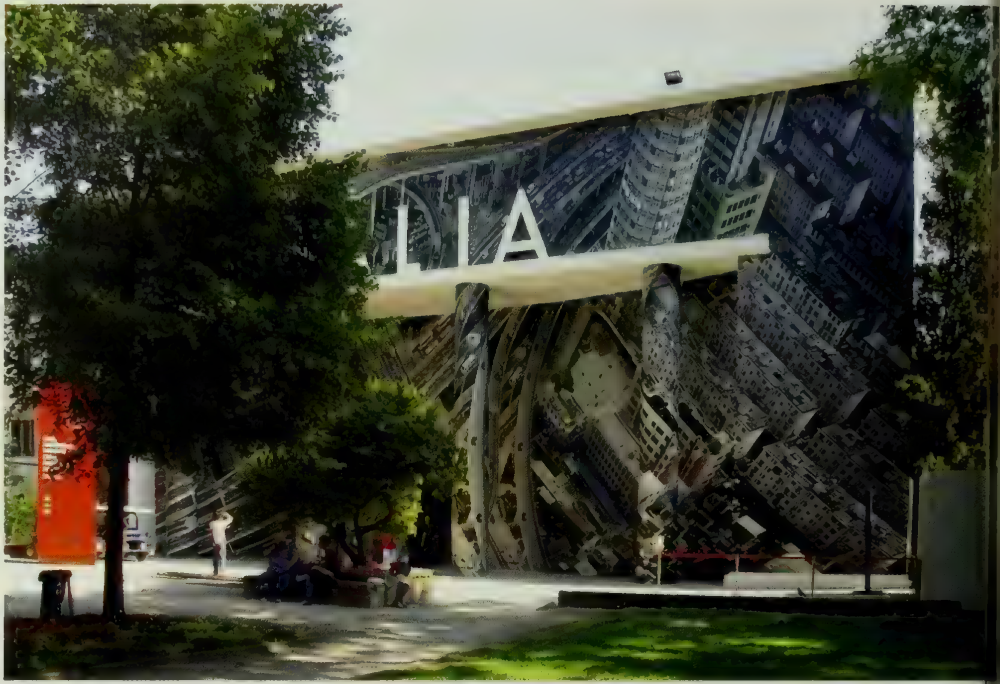
Venice Biennale National Pavilions

The 10th Architecture Biennale, with its international audience and worldwide perspective, is the ideal place for a country to show what its most talented architects can do. But this year, when the main exhibition in the Arsenale poses questions about problems rather than offers solutions, few followed through with clearly presented architectural ideas.

Too many of the 50 national pavilions seemed to be trying desperately to be exciting or artistic, instead of clearly informative.

While a few countries, such as China and Japan, attempted to show that native traditions or crafts are not forgotten—many countries tried too hard to entertain visitors.

In the following pages, three critics describe some of the highlights from those national exhibitions. J.M.



Bold graphics covered the Italian Pavilion (top). Inside was AMO's show on cities in the Persian Gulf (above left) and *C-International Photo Magazine*'s display. (above)

Italy

By Helen Castle

At the Italian Pavilion, the largest in the Giardini di Castello, commissioner Pio Baldi and curator Franco Purini invited 13 "international research institutions" to each present their own exhibitions. The choice was well-founded, if weighted to Europe and America.

A studious joint effort of Mexico's Universidad Iberoamericana, India's Urban Design Research Institute, and the Università Iuav di Venezia analyses the relationship between urban design and global change in Mexico City, Mumbai, and Venice. Here, for example, satellite photography and a focus on Venice's industrial hinterland, enables us to see past the historic facade of the tourist city and understand Venice as the greater urban conurbation of Padua and Treviso. Also pertinent is the show organized by the University of Texas at Austin on the social and political impact of Hurricane Katrina on the Gulf Coast.

The decision to include Office of Metropolitan Architecture's research arm, AMO, reflects the influence that Rem Koolhaas has had on the entire Biennale, with the *SMLXL* visual treatment of the main exhibition space. Here, AMO focuses on Dubai and other cities with the same deadpan reportage—maps, photos, and data—the master brought to China. While pure information is fascinating, one aches for aesthetics and architectural solutions.

Less obvious is having two publications act as curators under the guise of "research institutions." *Domus* presents the extraordinary Soviet architecture of Pyongyang, the capital of North Korea, rebuilt after aerial bombing in 1952, in the chic style of *Wallpaper**. However, *C-International Photo Magazine*'s show predominates, filling the entire central ground-floor space. Super vivid, high-quality photographic prints are alluring, but one feels the very scale and slickness of this exhibition owes more to the sizable financial commitment of Ivory Press and C.E.O. Elena Foster to its new magazine.

The two most innovative schemes are *Babylon:don* by Nigel Coates's students at London's Royal College of Art, with its handcrafte models and its often witty archite tural responses to the diverse cultural mix of the city, and the *Venice Super Blog*, a collaborati between The Architecture Founda of London and New York's Museu of Modern Art. *Super Blog* effect captured the spirit of the press w end, giving immediate voice to th opinions and excesses of the arc tectural cognoscenti.

Helen Castle is the editor of AD/Architectural Design *magazine in London.*

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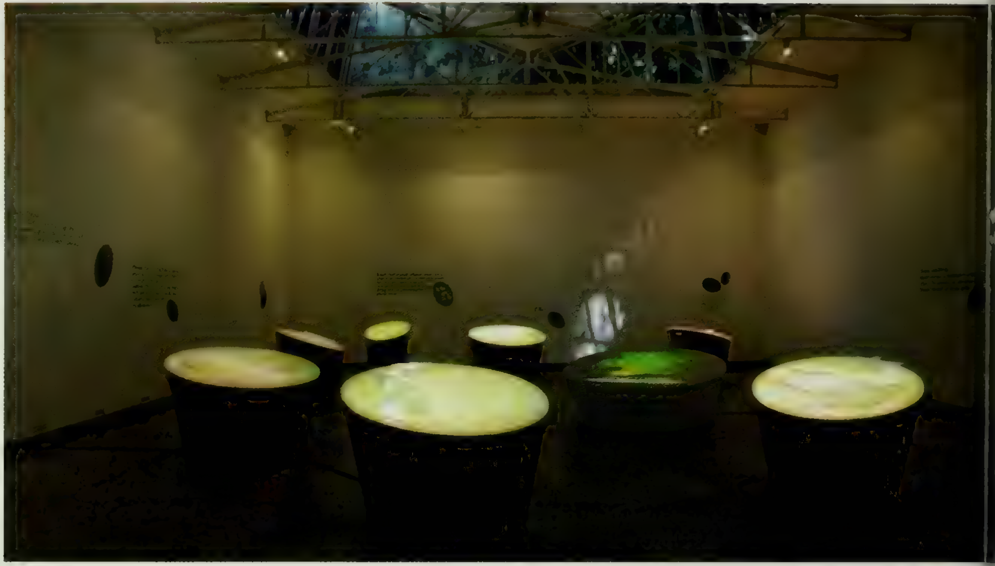
Switzerland

By Alexander Gorlin, FAIA



At first, the selection of Bernard Tschumi by commissioner Urs Staub to be the sole exhibitor in the Swiss Pavilion seemed puzzling: He maintains offices in New York City and Paris, and there is no lack of talented "native" Swiss architects. Yet he still has his Swiss passport, so in this time of global flows of finance and architects, it is not completely illogical. Still, it is surprising that Tschumi shares double billing on the sign outside with Switzerland. This is the Tschumi show.

Tschumi filled the pavilion with scattered, low oval volumes sliced at an angle that recall, of all things, the holes in Swiss cheese. Dubbed *Elliptic City: Independent Financial Center of the Americas*, the project is a speculative waterfront residential development in Santo Domingo in the Dominican Republic. At least that is what it appears to be. It is not entirely clear: operational directions, rules, "concept forms," and vague circulation diagrams locate housing, hotels, and shopping on the site. Elliptical plan forms rule the day, although why these shapes and not others are used is, again, not clear. The brilliant display of a noncommitment to anything specific is rather od from a country (and an architect known for precision.

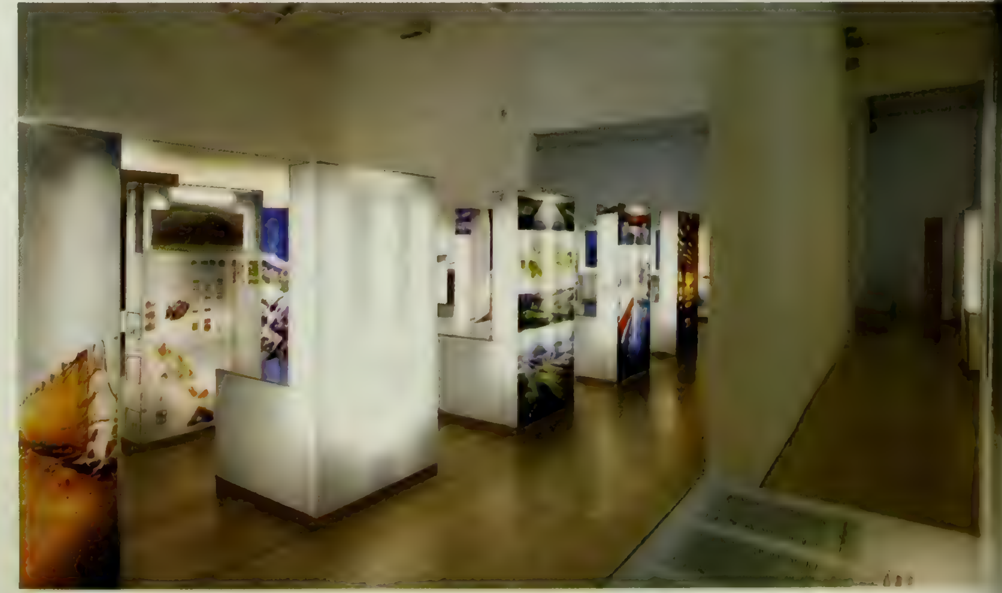
Bernard Tschumi's installation of his plan for Santo Domingo.

Spain

In contrast to the statistic-based exhibition at the Arsenale, the Spanish Pavilion and its luminous display of steles with backlit photographs of women is a refreshing change. The steles each represent a woman architect, urban planner, or writer who is either living or working in Spain today. The feminine root of the country's name, *España*, provides the springboard for the theme animating the exhibition—a surprise from a country known for machismo. (And the commissioner and curator is a man, Manuel Blanco.)

As at a science fair, each woman stands in front of her contribution to architecture and the city. On the other side of her image is her project presented with models and drawings. Despite the generally positive aspect of the display, at times it uneasily recalls luminous tombstones or the ads on a New York City public bus shelter. And of course, the emphasis on the image of the woman is a double-edged sword. After a while, one only notices the differences in body type and attractiveness among the women. Although the exhibition is meant to present the work of women, the decision to show their images first makes the achievement secondary! Pretty soon, the ambience starts to spook. The Spanish chick pavilio has this male observer "running with the wolves" for an espresso the Giardini.

Alexander Gorlin, FAIA, is a pract ing architect and writer in New Yo



The display devoted to women professionals, in the Spanish Pavilion.

Lagrange ON STEEL

icien Lagrange. Principal. Lucien Lagrange Architects. Born in France, he moved Montreal in 1959. He interned at Skidmore, Owings & Merrill, tasted Chicago, d couldn't stay away. Now one of the most creative classic designers Chicago s ever seen, he is busy leaving his imprint on the City with Big Shoulders, signing with steel.

GETTING STARTED "In 1968, I was lucky enough to get a job at SOM in Chicago. They were just finishing the Hancock, which is an incredible steel structure. Beginning my second week in Chicago, I worked with Bruce Graham and Fazlur Khan, and I really started to understand steel through their teaching. They were incredible people with visions of buildings and structures."

DESIGN "You have to understand structure. You have to feel in your body how the structure behaves. You have to think one way about concrete, and then another about steel. There are elements of a structure which are similar; but with tall buildings, you have to understand how – and why – they stand up. You almost have to feel the structure yourself. Once you do that, you'll find that steel behaves very differently than concrete. Steel allows you more flexibility than concrete."

WORK "You have to get emotional, otherwise a project becomes just a job. You have to have passion for your work."

VALUE "Efficiency lends value, and steel is highly efficient. Steel offers longer spans than concrete and steel sections have narrower profiles than their concrete equivalents. Therefore, steel lends itself to utilizing the ceiling space to run mechanicals through members, which typically results in higher ceilings. The span capabilities allow us to create setbacks in the building more easily, and these are used for balconies and terraces, which add value to the building."

COMMITMENT "During the design phase, we changed from a concrete structure to a steel structure. After this decision was made, my client wanted me to resign. I was moving too slow. I said, 'You cannot fire me. You don't understand the complexity of steel. Later on, if you want to fire me, you can. But I have to finish what I started.' He didn't fire me. Steel is different. It puts a different layer of complexity on the project that you do not have with concrete. With steel, it's more of a challenge, and you must make a commitment in order to succeed. I understand steel, but how do you really explain it? I was convinced in the end that my client would get a better building because of my belief in steel and my principles."

CREATIVITY "If you want to be creative, use steel. Steel requires a bit more work from the designer, because you have to put together a ceiling, exterior wall…more pieces come together. When concrete is up, you're almost done. The opportunities for building transparency presented by steel structures are exceptional. This transparency lends an ephemeral quality to the buildings."

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FLEXIBILITY "There's a lot you can create with steel because it's steel. Steel is more straightforward. You can mold concrete, for example. But steel comes in pre-designed pieces, out of the mill. At Erie on the Park, a gentlemen bought two units on top of each other and wanted to connect them. We put a stairway next to the exterior wall. That would have been impossible in concrete. When you design a condo building structured in concrete, you have to deal with interior columns in the units. Because we used steel for Erie on the Park, the advantage was we didn't have any interior columns. We had full design freedom, with clear, open space from the core to the exterior wall."

TEAMWORK "A creative structural engineer is an integral member of the team when designing with steel. At 175 W. Jackson, we wanted to do something more creative than simply span the space with a large member as we inserted a skylight into an atrium. Our vision was to have the glass appear to float freely above a poetic, light, minimal structure. This could only be done in steel, and our structural engineer helped us realize our vision."

DETAILS "Designing with steel requires that we pay more attention to details. The integration of the structure with the enclosure, the placement and integration of the glazing, the mechanical coordination – this all requires thoughtful and judicious detailing to execute the building."

CLIENTS "You have to challenge your clients. That's what designing – especially in steel – allows you to do. Convince the client to do it. They will get excited about getting a better building. They'll make more money. Our clients make money through our designs."

STEEL "When you start with steel, it's very different. In my mind, when I look at steel, it creates a different emotion. It's exciting because it relates to tall structures, light material. When you think of concrete, you think about shape, heaviness. Intuitively, one usually doesn't relate high-rises with concrete. Steel makes you feel you can build as high as you want because it's light and strong. You can express the structure and it becomes part of your statement. There's so much emotion attached to doing a steel building. It's like a mechanical set...you build up in pieces, and it's exhilarating to follow the forces of the building to the ground. Major buildings – if not the major building of this century – can only be done in steel."

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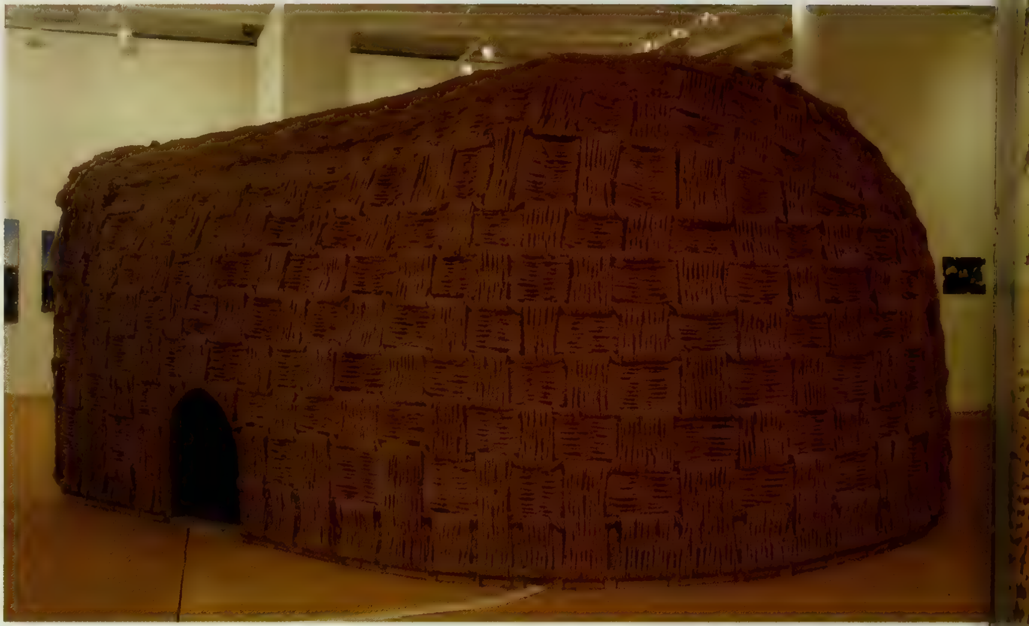
Japan

By Edwin Heathcote

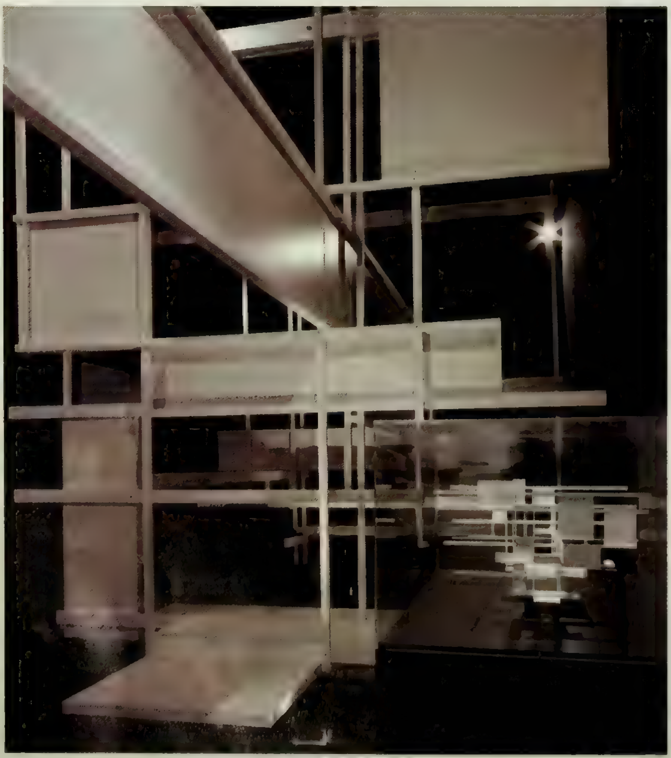
Usually the best pavilions at a frenetic show are the ones that concentrate their energy into a single point. Most try to do too much and become a fuzzy blur.

The Japanese Pavilion, organized by Terunobu Fujimori, an architectural historian and architect, cleverly eschews the single-point installation. You must first (shoelessly) creep into a small hole in a black, charred wall to reach the rather clichéd Zen calm of the interior. It works. In the silence of the space, you make time to wander through the exhibits of an extraordinarily organic, craft-based tradition (many designed by Fujimori).

A certain sense of unreality pervades in the tree houses and cabins with trunks sprouting as structure, like fairy tales in an idealized childhood. Perhaps the single most irrelevant pavilion for the Biennale's urban theme, Japan's offers one of its few memorable experiences. Instead of the slick Minimalism or technocratic expressionism architects slobber over, Fujimori blends entrancing photography and eccentric models carved from log sections. It is a kind of outsider pavilion with a complet lack of justification, yet a profound real sense of architecture and mat rial. Hauntingly memorable.



In the Japan Pavilion, a woven hut occupies the central space.



Friedrich Kiesler's 1925 installation, *Raumstadt*, in the Austrian Pavilion.

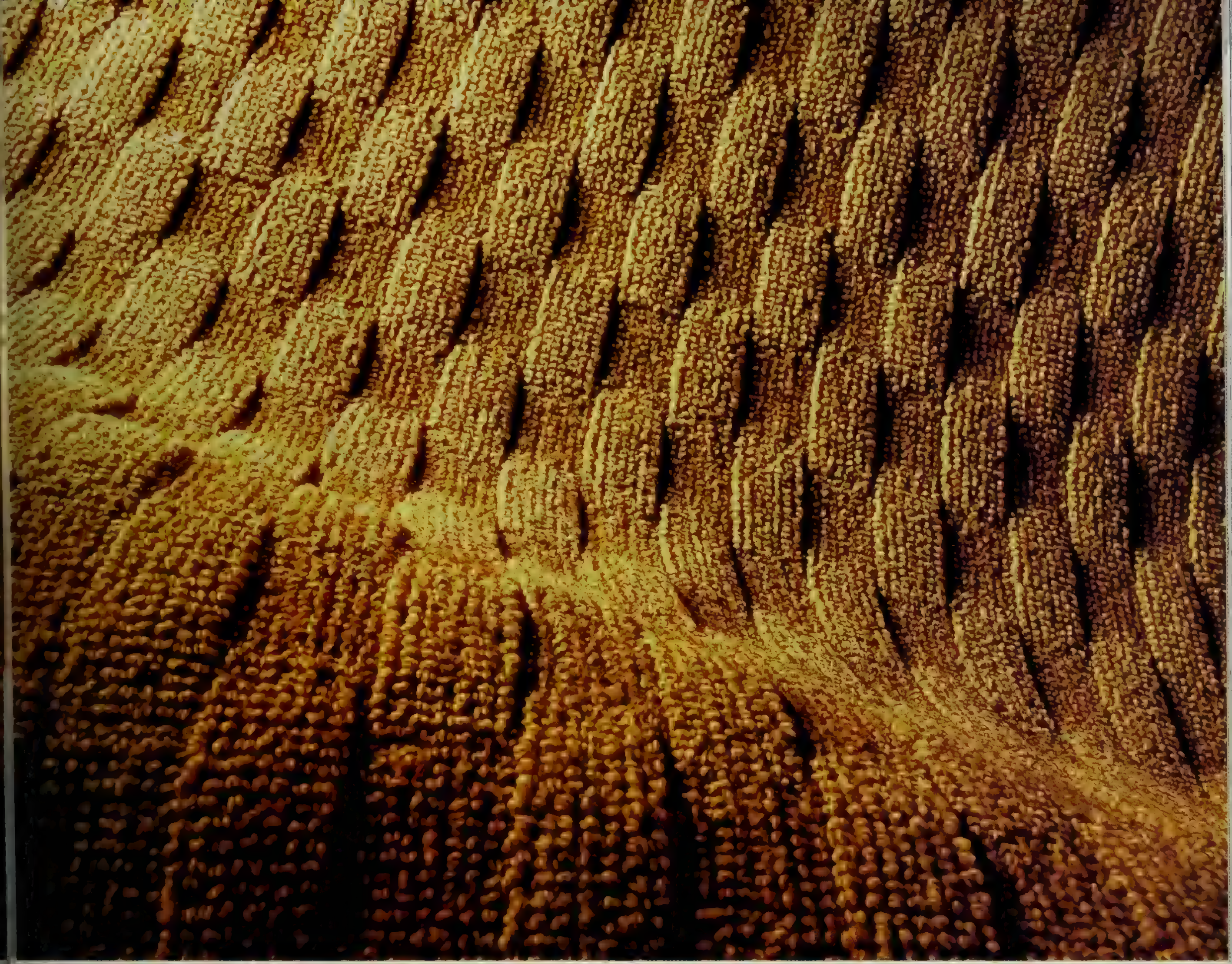
Austria

The Austrian Pavilion, designed by Josef Hoffmann in 1934, provides a severe, if beautiful, shell for the contents. But even this year's commissioner, architect Wolf Prix of Coop Himmelb(l)au, showed it was hard to fill in an exhibition titled *City=Space Shape Net*. In 1964, Hollein's photo collage of the aircraft carrier beached in a pastoral landscape made some instantly comprehensible points about the city, density, and bulk, and about the Modernist vision of the architectural object in a rural paradise. Yet those points are lost when rendered, as they are currently in the pavilion, in three dimensions. Here, the big boat appears as a schoolboy's dream, a giant toy.

Better is the reconstruction of Friedrich Kiesler's 1925 installat *Raumstadt (City in Space)*. But this too is neutered through sca and juxtaposition (with incompat ble and vaguely incomprehensib small models and photos). The result weakens the original conception of a sculptural spatial modulator by turning it into an a dyne scaffold.

Austria's contemporary arch tecture is extremely sophisticate and extraordinarily diverse, easily supporting a number of divergen but deeply held convictions, from the organic to stripped Alpine Modernism. The show chooses n to celebrate this rich culture, but rather to revisit, reinterpret, and ultimately undermine the icons o intellectual and theoretical past.

Edwin Heathcote is the architectur critic of The Financial Times, *Lon*



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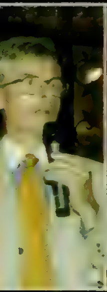
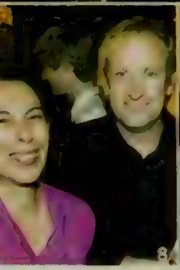
ARCHITECTURAL RECORD

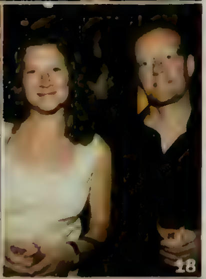
2006 Venice Architecture Biennale

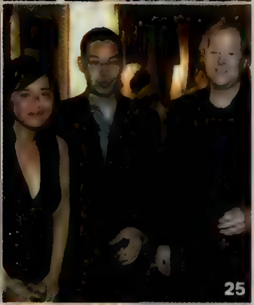
After all the work organizing, designing, and mounting the exhibition for the U.S. Pavilion, RECORD was ready to party—with receptions at the Hotel Danieli (in honor of Autodesk) and at the Peggy Guggenheim Collection.

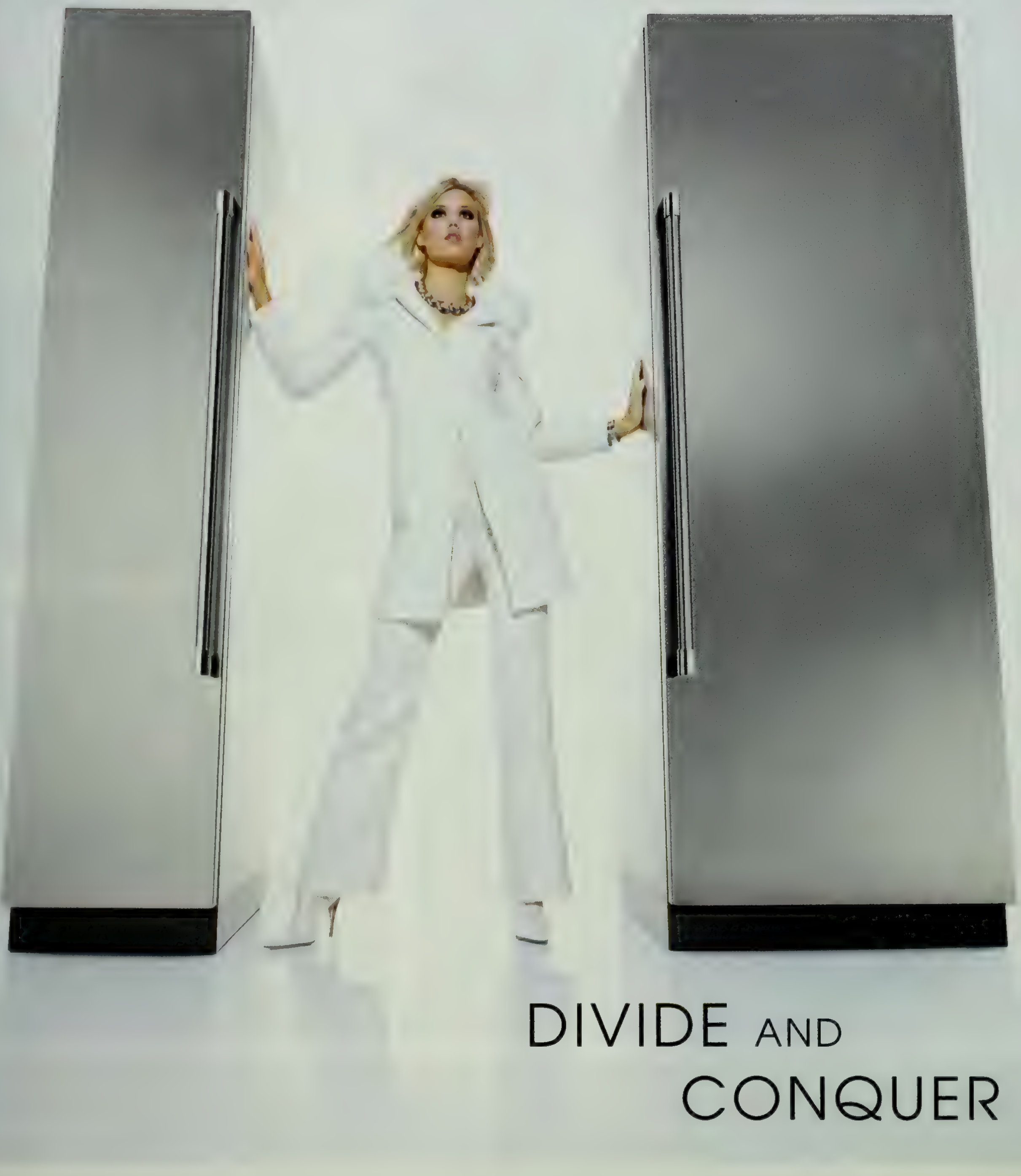
1. *Phil Bernstein, Karsten Popp, Winka Dubbeldam, Peter Reed.* **2.** *Ray Ryan, David Morton, Diana Lind, Alex Gorlin, Charles Miers, Joseph Rosa.* **3.** *Philip Rylands.* **4.** *Frank Barkow, Barry Bergdoll.* **5.** *Kate Linker, Bernard Tschumi, Nigel Coates.* **6.** *Jayne Merkel.* **7.** *Reed Kroloff.* **8.** *Chiara Barbieri, Christian D. Bruun.* **9.** *Tim Johnson.* **10.** *Werner Sobek.* **11.** *Ralph Johnson, Casey Jones.* **12.** *Sir Richard MacCormack.* **13.** *Laurie Beckelman, Joseph Rykwert.* **14.** *Lea Perez, Margaret Helfand.* **15.** *Toshiko Mori.* **16.** *Christian Stayner, Robert Pietrusko, Stuart Heys, Sarah Herda, Christian Bruun.* **17.** *Robert Ivy, Suzanne Stephens, Clifford Pearson.* **18.** *Antje Quiram, Roland Halbe.* **19.** *Laura Viscusi, Richard Harpham, Barbara Kroll.* **20.** *Charles Jencks, Lily Jencks, Russell Fortmeyer.* **21.** *Matthias Sauerbruck, Louisa Hutton.* **22.** *Peter Anderson.* **23.** *Leanne Mella.* **24.** *Karsten Popp, Elisabetta Fagiuoli.* **25.** *Rita Sio, Dennis Oshiro, Mark Anderson.* **26.** *Markus Eiblmayr, Lilli Hollein.* **27.** *David Meitus, Angela Westwater.*











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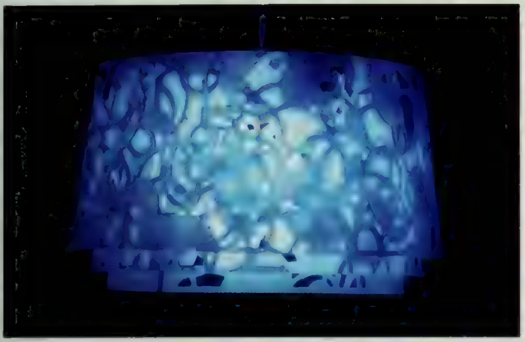

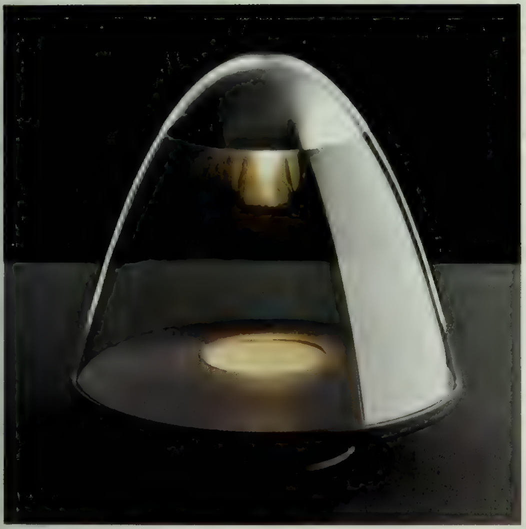

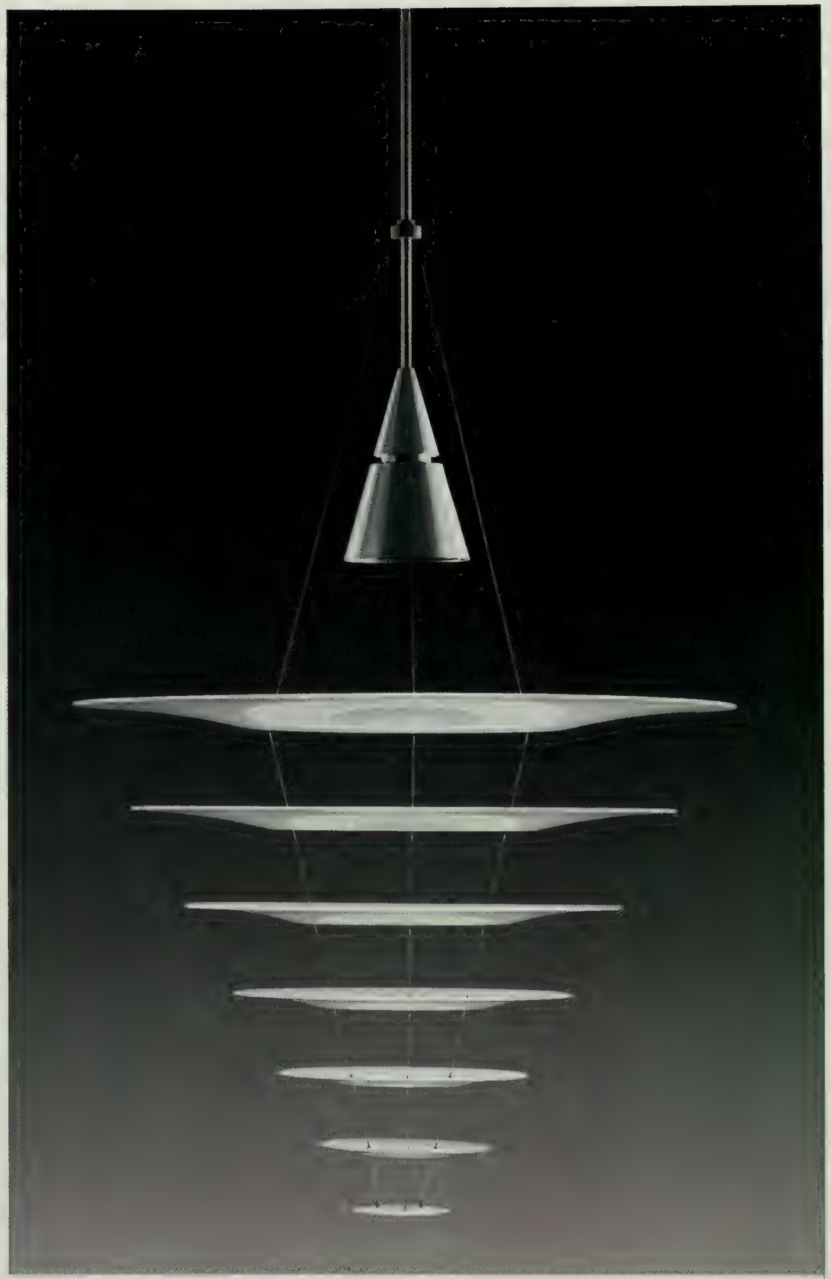

By Rita Catinella Orrell

Fixtures that illuminate in a variety of brilliant ways

For more than 70 years, Louis Poulsen has pushed the boundary between art objects and functional lights, and its latest U.S. introductions from an international roster of designers continues that legacy. Enigma, a direct/indirect pendant by Tokyo-based Shoichi Uchiyama, provides glare-free lighting with graduated matte acrylic shades. Hair-thin aircraft cables give the shades the illusion of floating, while the light source is completely hidden within an aluminum cone. Volcano, by London-based David Morgan Associates, is made with a vacuum-formed clear polycarbonate shade. Light emanates from the center of the 1½-foot-high floor light, striking the reflector and spreading along the bottom portion of the luminaire. Danish designer Louis Campbell tried to replicate the way sun shines through leaves with the Collage pendant, constructed of three pieces of laser-cut, glossy extruded acrylic. Louis Poulsen Lighting, Ft. Lauderdale, Fla. www.louispoulsen.com **CIRCLE 200**

Clockwise from right: The Enigma 825 model features seven shades that reflect light from a hidden source. Volcano is encased in a conical, clear polycarbonate shade. Collage, shown here in Heavenly Blue, projects shadows on itself.

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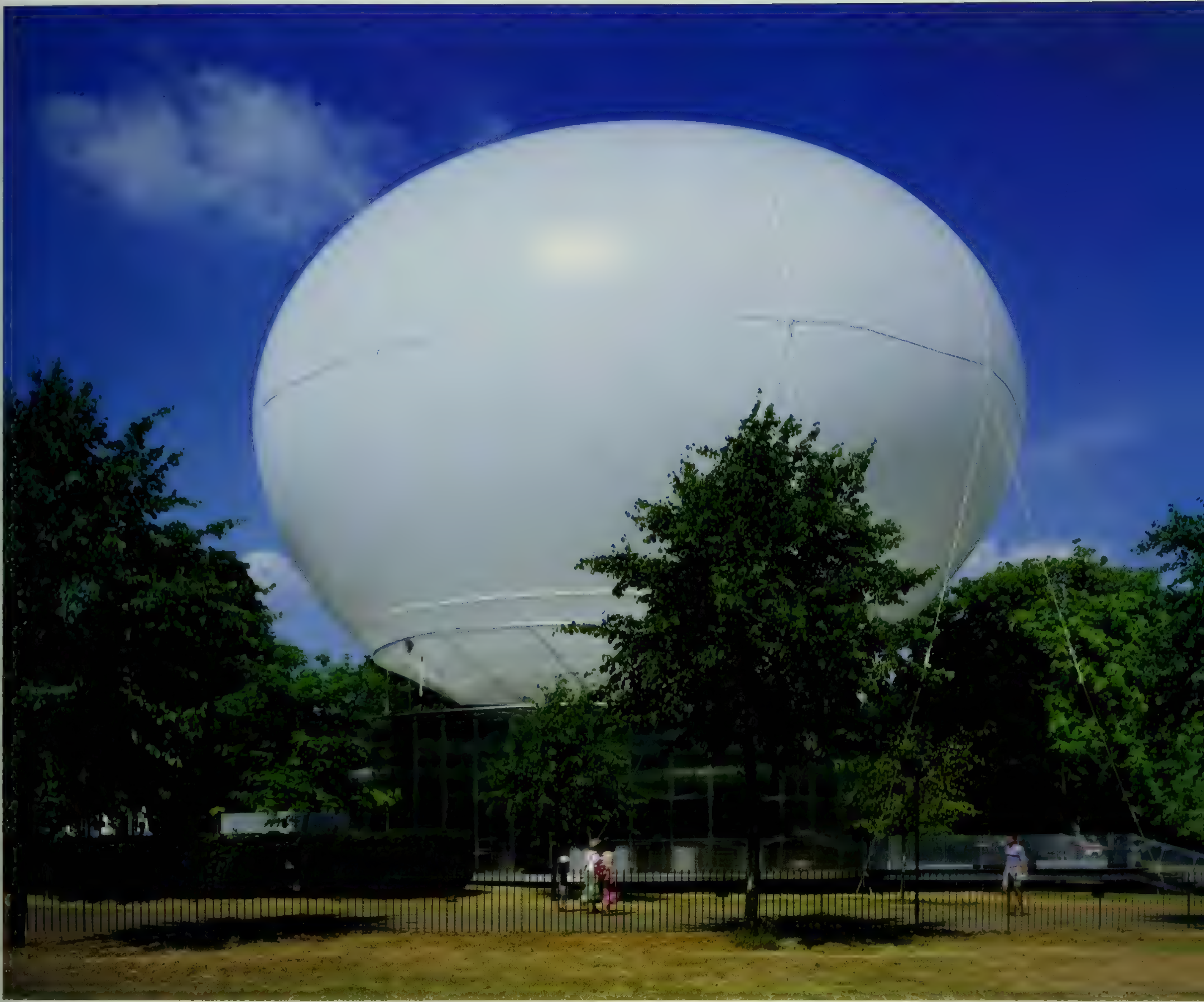
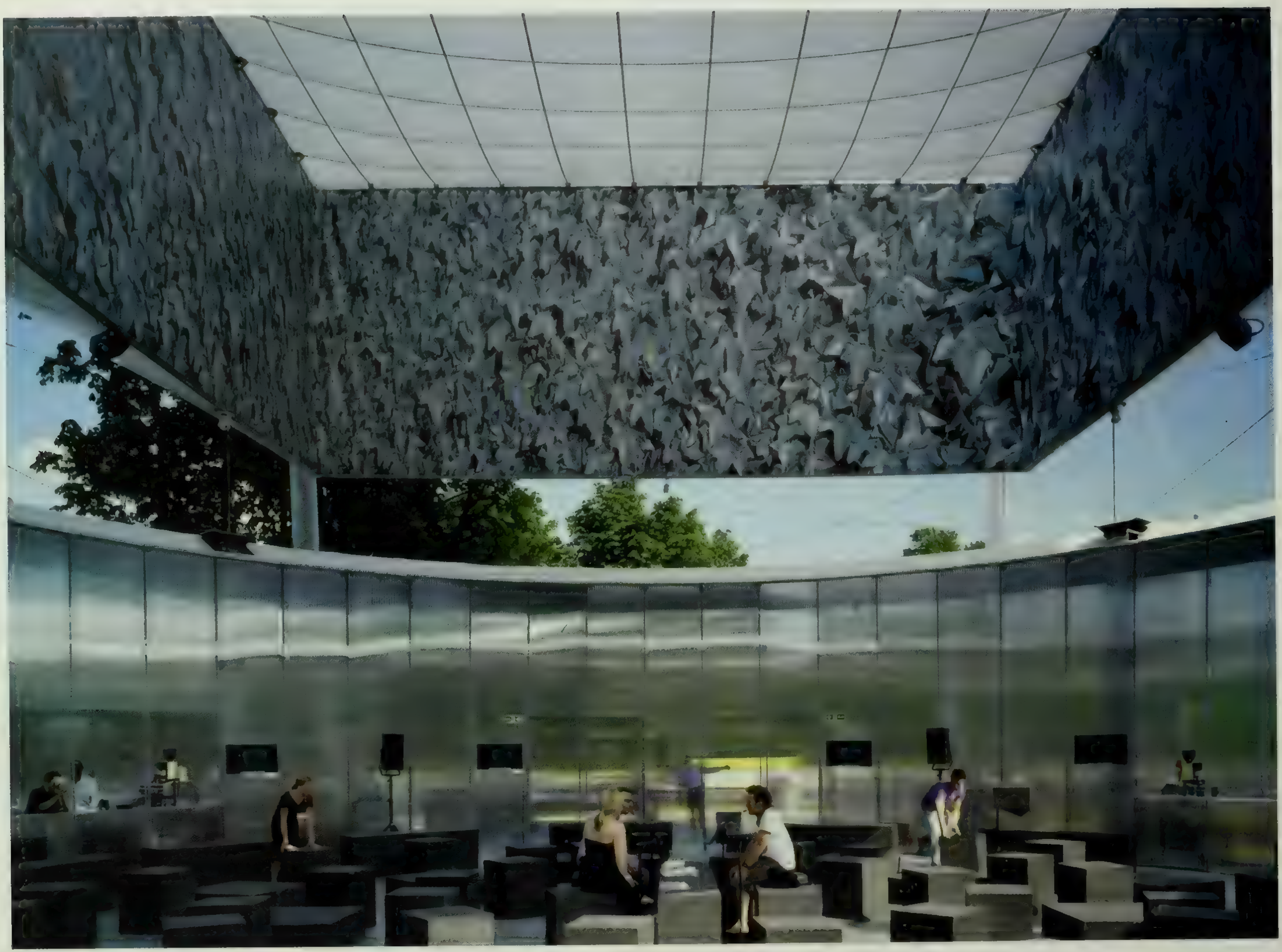


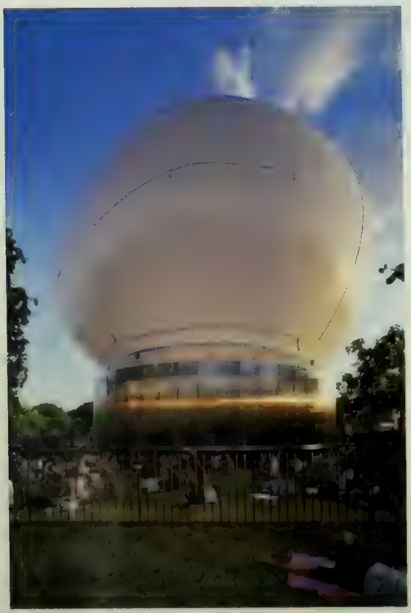
By Clifford A. Pearson

Rem and Cecil lay a Cosmic Egg in London

Call it an architectural soufflé, a lighter-than-air confection that amuses without provoking any deep thoughts. This year's Serpentine Gallery Pavilion, designed by Rem Koolhaas and Arup's Cecil Balmond, hovers above the gallery's 1934 redbrick home (right) and the leafy setting of London's Kensington Gardens, recalling a 1960s-era doodle come to life. But the inflatable buildings and walking cities that architects such as Cedric Price and Archigram conjured in Swinging London four decades ago presented more anarchistic and rebellious statements than the tame, milky white balloon that Koolhaas and Balmond have tethered to a translucent polycarbonate base. Instead of in-your-face attitude, the 2006 Serpentine pavilion offers a tasteful version of fun. Instead of paisleys and a riot of images, it gives us a monochromatic ensemble of geometric forms.

The sixth in a line of temporary structures commissioned by the Serpentine, the pavilion serves as a café and meeting space and houses a four-sided frieze by artist Thomas Demand that hangs above the polycarbonate base.





A Thomas Demand frieze hangs above a base of polycarbonate sheeting and solid polycarbonate mullions (above). The balloon (left) is a PVC membrane filled with helium.

(The popular program of summer pavilions is the brainchild of Julia Peyton-Jones, the Serpentine's director, and has featured designs by Zaha Hadid, Daniel Libeskind, Toyo Ito, Oscar Niemeyer, and Alvaro Siza with Eduardo Souto de Moura.) On calm days, this year's 262,500-cubic-foot balloon, which has a PVC membrane filled with helium and pressurized air, can float above its translucent base to allow air and light inside. When winds pick up or rain starts, it returns to its mooring. Koolhaas calls it a "nonpavilion," and Balmond refers to it as "the Cosmic Egg," due to its irregular ovoid shape.

Inside the pavilion, visitors can move blocky seats into impromptu arrangements and kibitz while sipping cappuccinos. In addition to designing the building, Koolhaas helped develop the series of talks, forums, and film screenings that would fill it during the summer. On two days, he and Hans Ulrich Obrist, a Serpentine curator, held court for 16 hours, conducting interview marathons with architects, artists, filmmakers, writers, theorists, and various other Friends of Rem. According to Koolhaas, the programs inside the pavilion are as important as the architecture. The emphasis on freewheeling talk and long hours of hanging out recall the "happenings" of the 1960s, when the overriding idea was more important than specific details. What better metaphor could there be for all that hot air than a pavilion shaped like a balloon? ■

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The Architecture of Success

The 9th BW/AR Awards present innovative designs that support business objectives

By John Gendall

This year, for the ninth time, ARCHITECTURAL RECORD has teamed up with its sister publication *BusinessWeek* to honor successful collaborations between architects and clients. Selected by a jury for their success in understanding and enhancing their client's business goals, the eight winners and six finalists come from a competitive pool of entries submitted from around the globe.

Hailing from seven U.S. states, as well as Canada, Mexico, the U.K., and Germany, the winners represent a broad range not only geographically, but also in program, scale, budget, and style. In one project, a 20th-century candy factory is transformed into a light-filled biomedical research lab that increases employee interaction. In another, a streamlined glass cube transforms an underused plaza in New York City into a company's most successful retail outlet. But despite their differences, what unites all of these projects is their clear demonstration of architecture's capacity to be artistically compelling while equipping the client for growth and success.

WINNERS

Apple Store Fifth Avenue
Bohlin Cywinski Jackson

Nissan Design America
Luce et Studio

Advertising Agency
Terán/TBWA: The Idea Factory

Terrence Donnelly Centre for Cellular and Biomolecular Research
architectsAlliance and Behnisch Architekten

TreuHandStelle at Nordstern
Architect Team THS/PASD

Genzyme Center
Behnisch Architects and Behnisch Architekten

Bloomberg Headquarters
STUDIOS Architecture

Novartis Institutes for BioMedical Research
The Stubbins Associates

FINALISTS

Sarasota Herald-Tribune Media Headquarters
Arquitectonica

731 Lexington Avenue
Pelli Clarke Pelli Architects

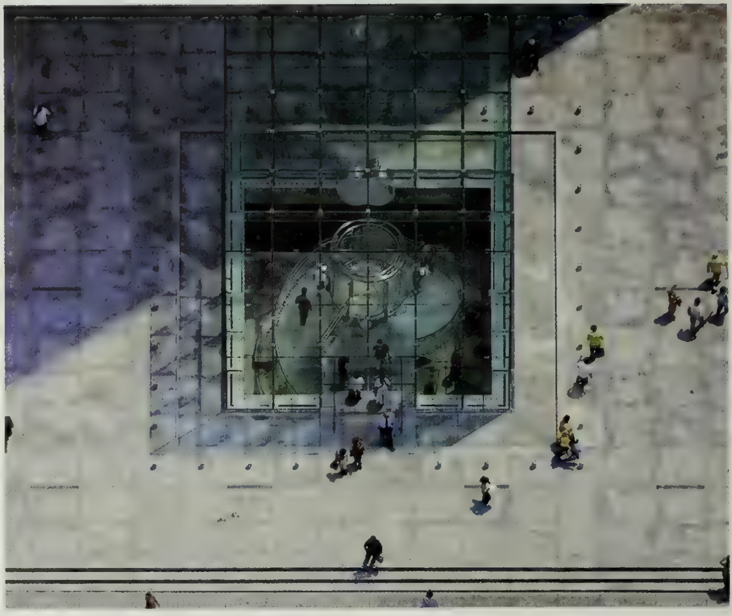
Alberici Corporation Headquarters
Mackey Mitchell Associates

The Wellcome Trust Sanger Institute Campus Expansion
NBBJ

Virginia Beach Convention Center
Skidmore, Owings & Merrill

California Department of Health Services
STUDIOS Architecture

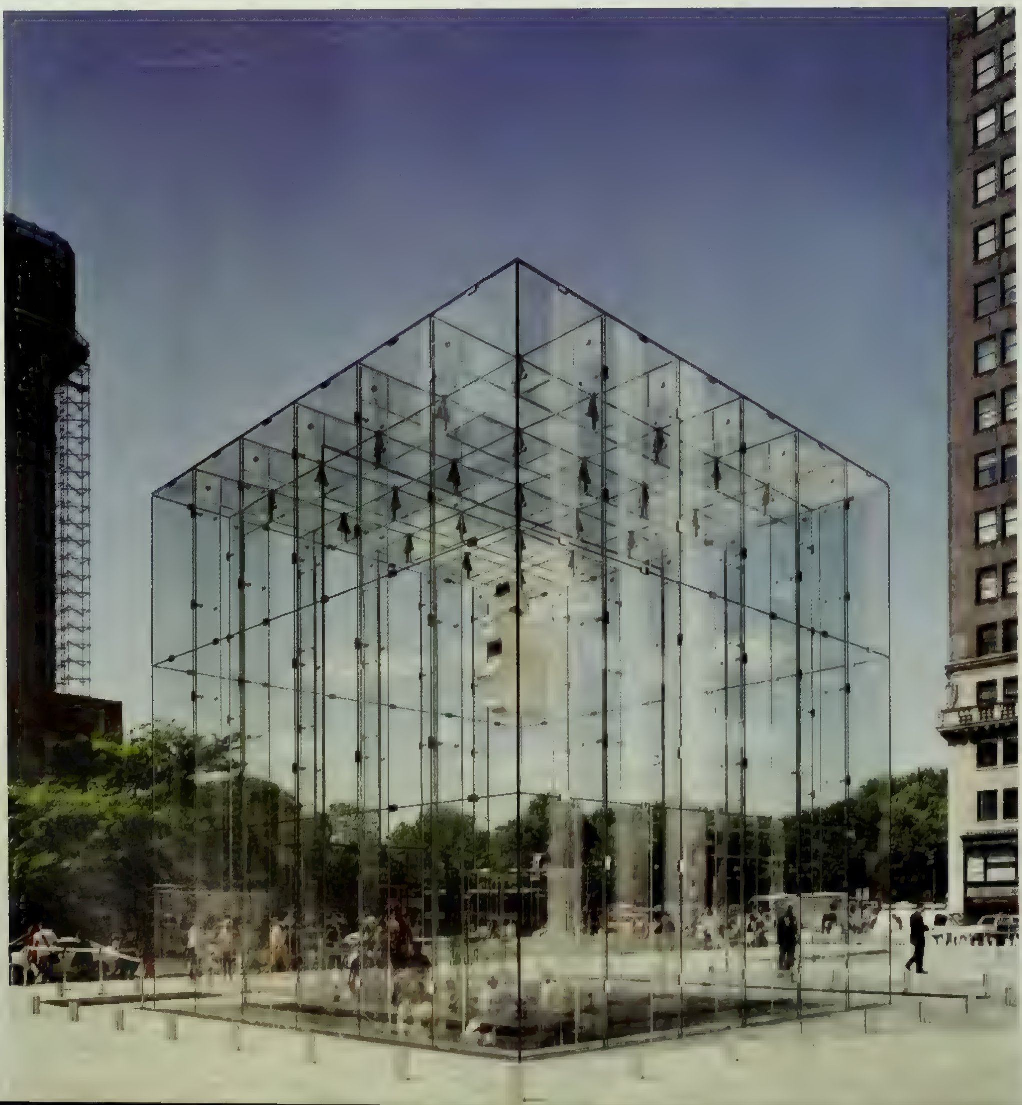
APPLE STORE FIFTH AVENUE
Bohlin Cywinski Jackson



Modern architecture has long been preoccupied with creating nothingness. Bohlin Cywinski Jackson has come a step closer to attaining that impossible goal with a glass pavilion over the new 5th Avenue Apple Store in Manhattan. Despite its Minimal form and ethereal materials, it has spawned a retail juggernaut.

The store transforms an underused, sunken plaza in front of the 50-story General Motors Building at 5th Avenue and 59th Street into vibrant space. By submerging the store under the plaza, the architects were able to crown it with a 32-foot cube that occupies only 8 percent of the plaza and leaves the rest for public use.

Anything below-grade is famously difficult as retail space because it depends on luring fickle shoppers away from the street.



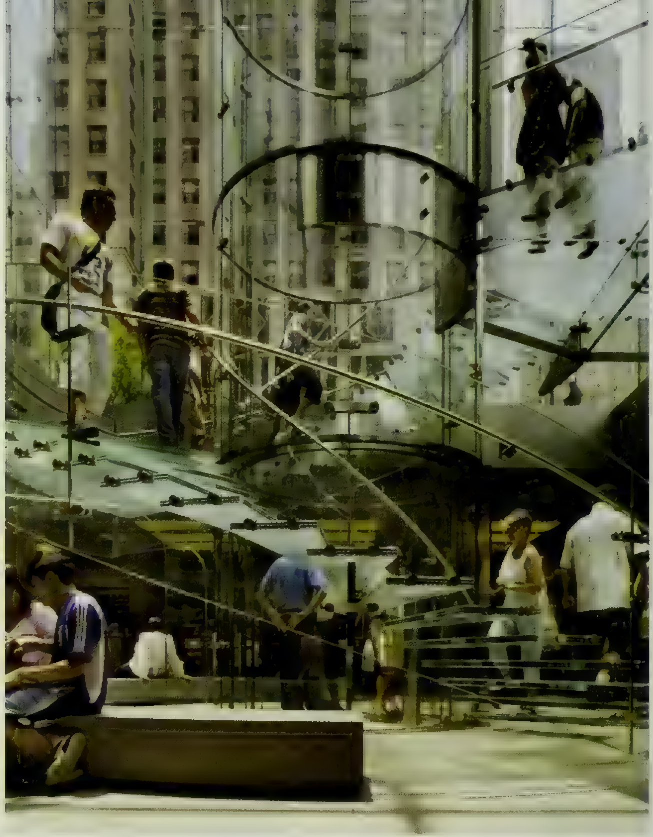
Project: *Apple Store Fifth Avenue, New York, N.Y.*
Key players: *Bohlin Cywinski Jackson (architect)*
Client: *Apple*

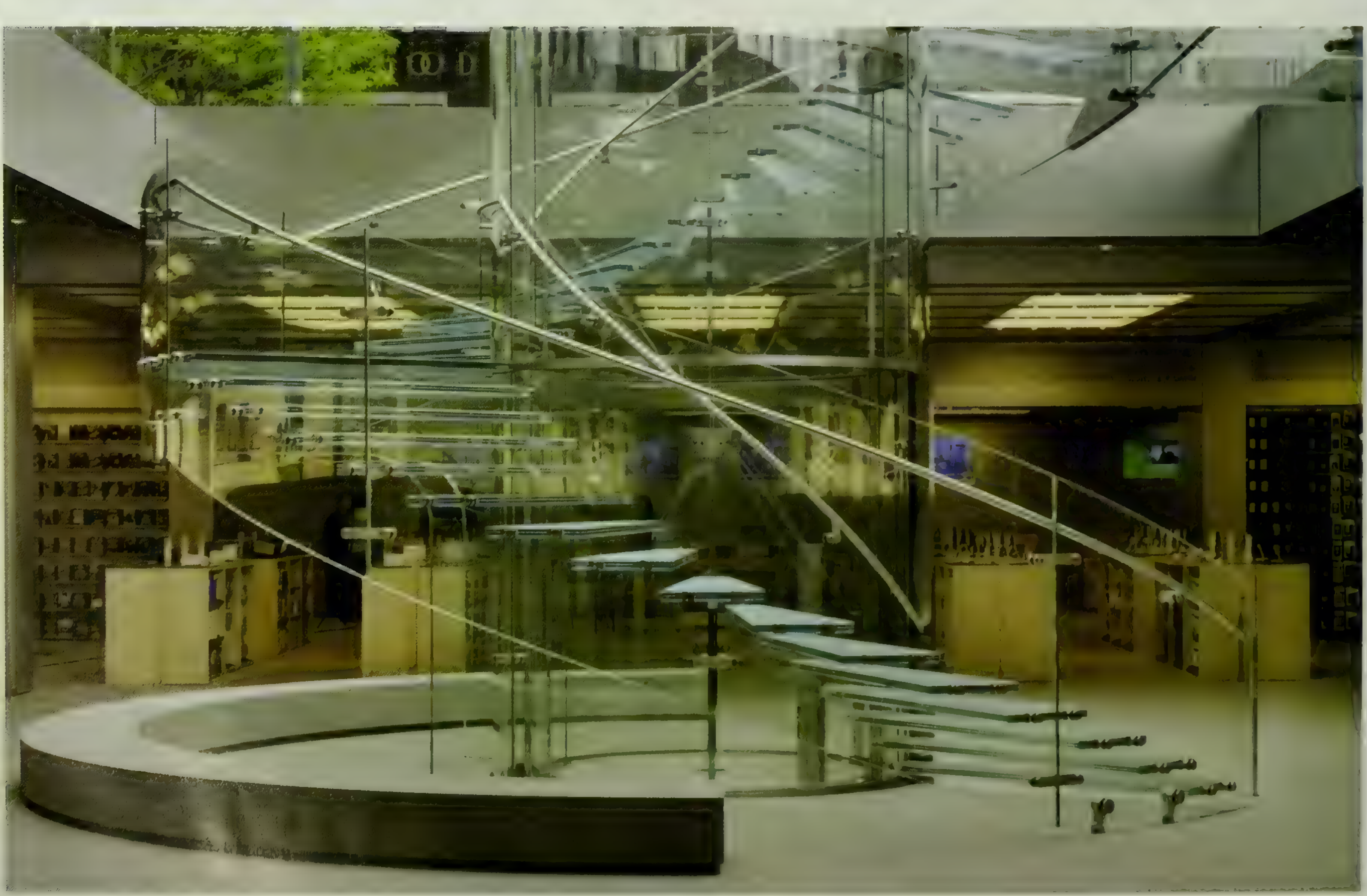
Ron Johnson, Apple's senior vice president of retail, understood the challenge but believed that "if we get the design right, we can get people to go down." Not only does the Apple Store get people underground, it has become a 24/7 shopping sensation and the highest-volume retail outlet for the company.

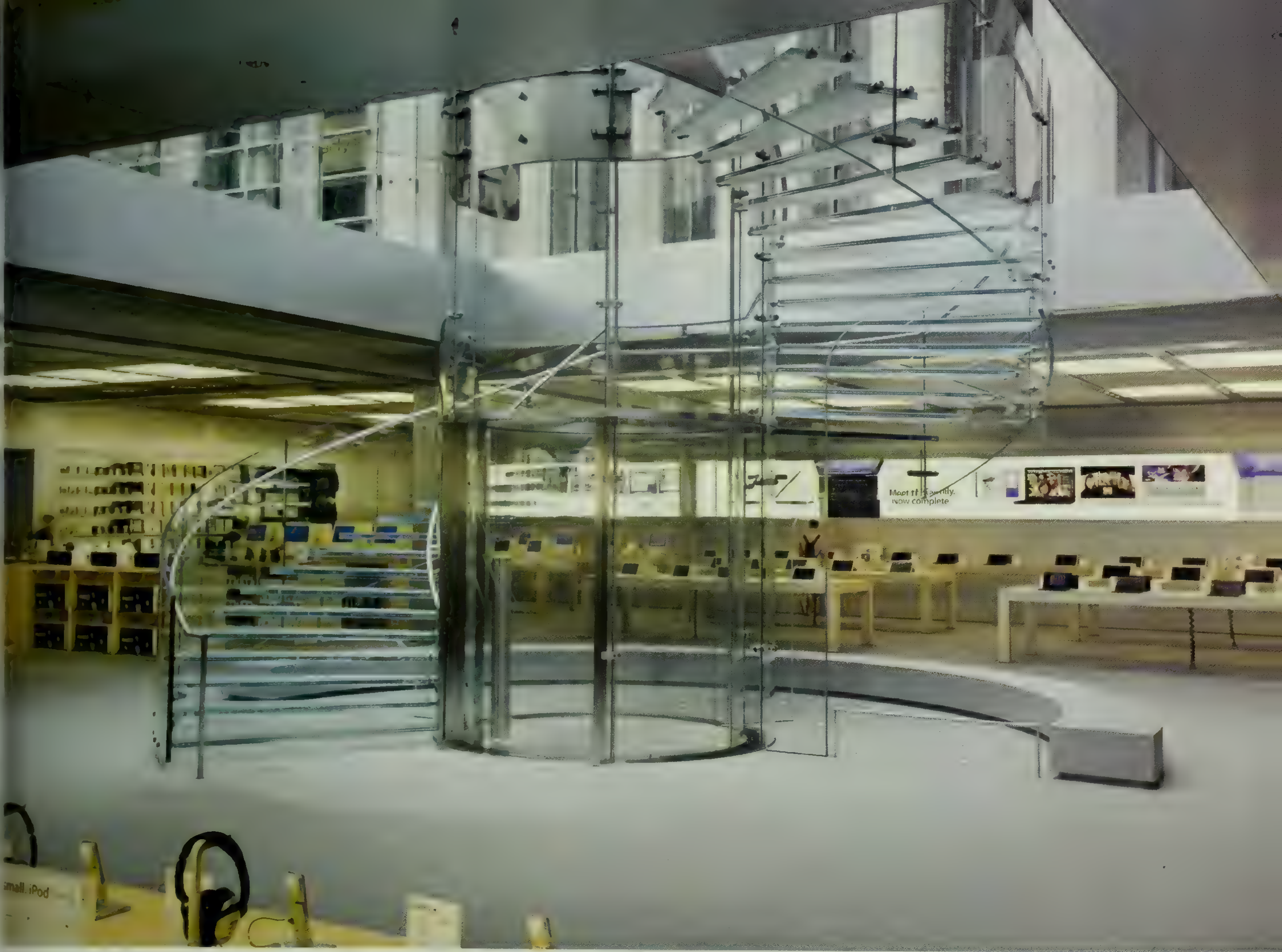
Free of structural steel, the cube relies on a system of taut glass skin, glass beams, and stainless-steel fittings to float over the retail space. The architects carefully scaled and positioned the glass pavilion to flood the entire space with daylight so shoppers never feel they are underground.

A member of the BW/AR jury praised the Apple Store as a "preeminent example of the power of architecture on business, and how the public understands and experiences a brand."

Peter Bohlin of Bohlin Cywinski Jackson explains that "with today's technology, the store is as pure as it can be." Even though it is hardly there, it has become an instant icon and an overwhelming business success.







A glass staircase spirals around a cylindrical glass elevator to connect the store below with the plaza above. A "plaza beneath a plaza," the store is Apple's highest-volume retail space. Its transparent materiality and open design serve as an invitation to customers with diverse backgrounds and interests.

NISSAN DESIGN AMERICA
Luce et Studio

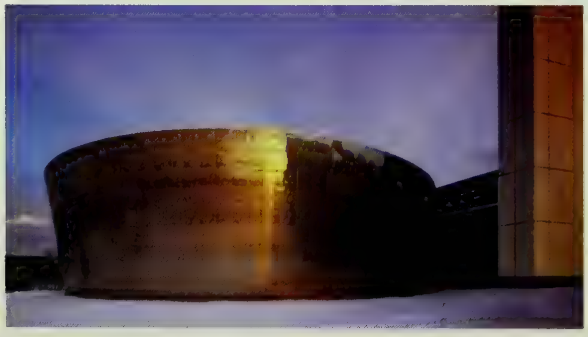
Because of the tight competition in its industry, automotive design facilities need privacy and security. This can result in buildings with what Jennifer Luce of Luce et Studio calls "antiseptic architecture."

For its design studio in La Jolla, California, and its styling studio in Detroit, Michigan, Luce designed facilities whose architecture not only reflects the car company's high level of design, but also features an openness that encourages communication between designers without compromising privacy.

The expansion and interior renovation in California included inserting large window and door openings onto the courtyard walls that had formerly separated the conceptual design from contour and engineering. Luce also added an "exploratory studio" to link the different design studios and to encourage interaction during the design process.

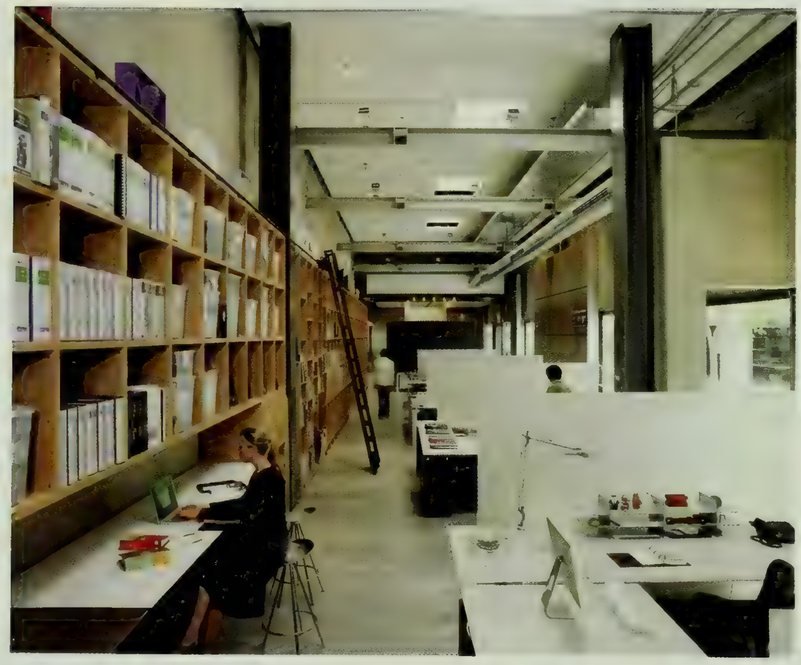
And in Detroit, Luce similarly merged two programs traditionally kept distinct: engineering and styling. A loggia open to everyone connects each of the studios. An aluminum portal articulates the threshold between this communal space and the private modeling studio. An outdoor viewing courtyard—"the egg"—is the final venue for the critique of the car designer's models. Typically relegated to nondescript warehouses or yards, Nissan now reviews designs in an area that demonstrates the same attention to detail as the cars that it produces.

The BW/AR jury noted that the facilities "maintain a design studio feeling with the capacity to build large mock-ups—a variety of design environments with both indoor and outdoor areas."



Project: *Nissan Design America, La Jolla, Calif., and Farmington Hills, Mich. [RECORD, December 2005, page 78]*
Key players: *Luce et Studio (architect)*
Client: *Nissan Design America*

Combining a variety of design environments, the new facilities for Nissan Design America encourage interaction among and between designers and engineers. A courtyard now opens to connect spaces that were once separated.



ADVERTISING AGENCY TERÁN/TBWA THE IDEA FACTORY

Garduño Arquitectos

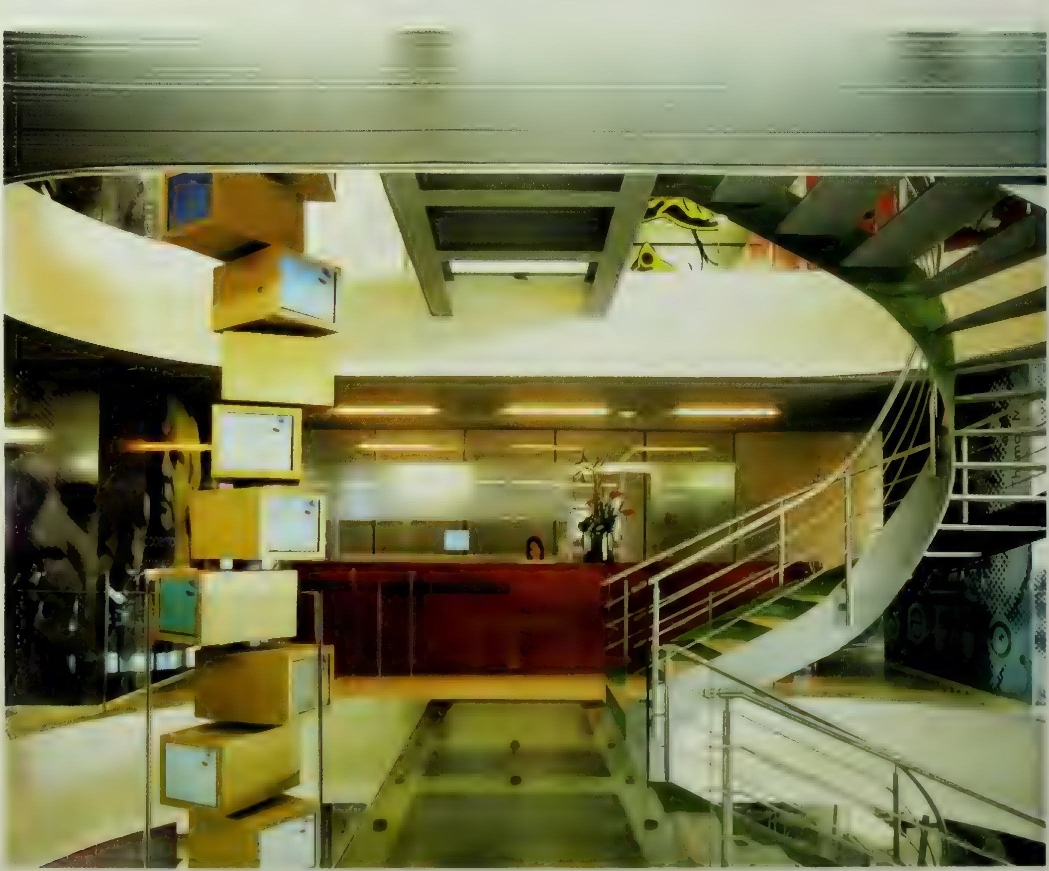
As part of the multinational advertising agency TBWA, Mexico City–based Terán/TBWA needed a space that would provide it with a unique identity within a larger organization. But image wasn't everything; its new home also needed to encourage creativity, collaboration, and flexibility.

In the advertising industry, where clients and projects quickly change, flexibility is a paramount concern. This became plainly evident during the short, four-month design phase, when Terán's project base turned over several times. The 160-person agency saw its needs for office space change constantly.

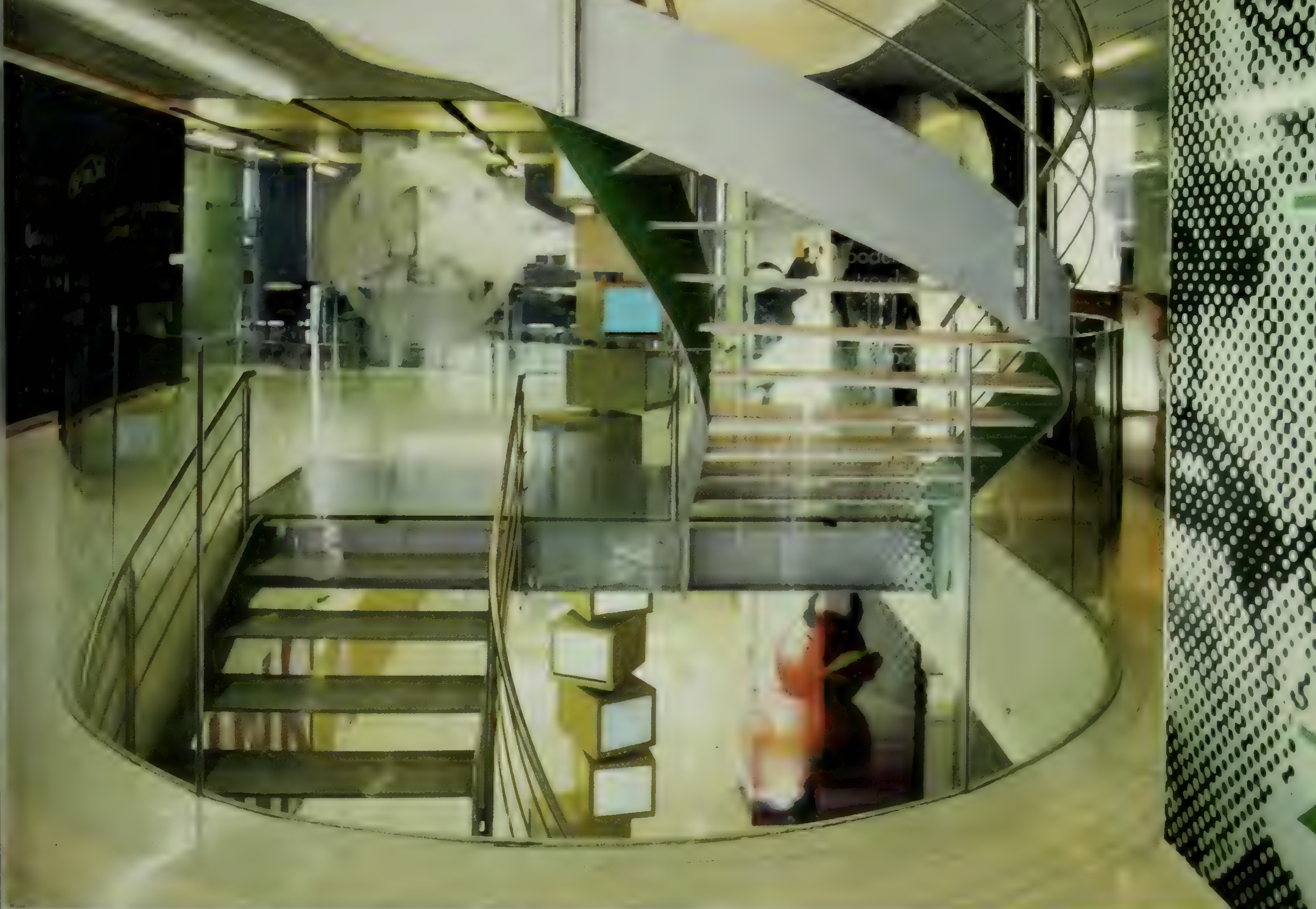
To accommodate this need, and to maximize interaction among employees—even those on different floors of the three-story space—Garduño Arquitectos called for open floor plans and everything in the building to be movable. Nearly all objects have wheels, including desks, chairs, office equipment, and filing cabinets. Designed as boxes unattached to floors or walls, even meeting rooms can be wheeled to modify the floor layout.

One of the few objects fixed firmly in place is a vertical axis composed of monitors encased in wood and stacked one atop the

Project: *Advertising Agency Terán/TBWA, The Idea Factory, Mexico D.F., Mexico*
Key players: *Garduño Arquitectos (architect); Alen Constructions and Enrique Alvarez (general contractor); Aguilar Engineer and Salvador Engineer (structural engineer); RCL. Roberto Campoy (electrical engineer)*
Client: *Terán/TBWA*

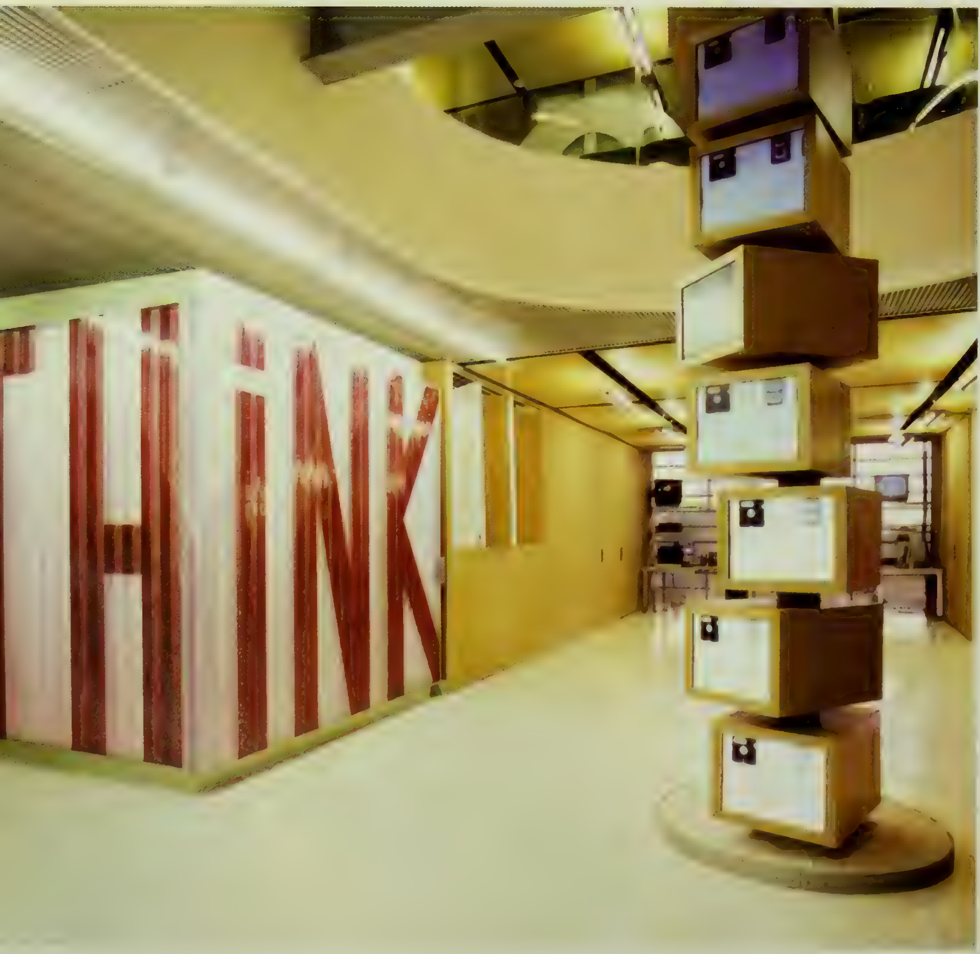


Garduño Arquitectos proposed the contemporary factory as a model for the space. The agency now calls its new home "The Idea Factory."

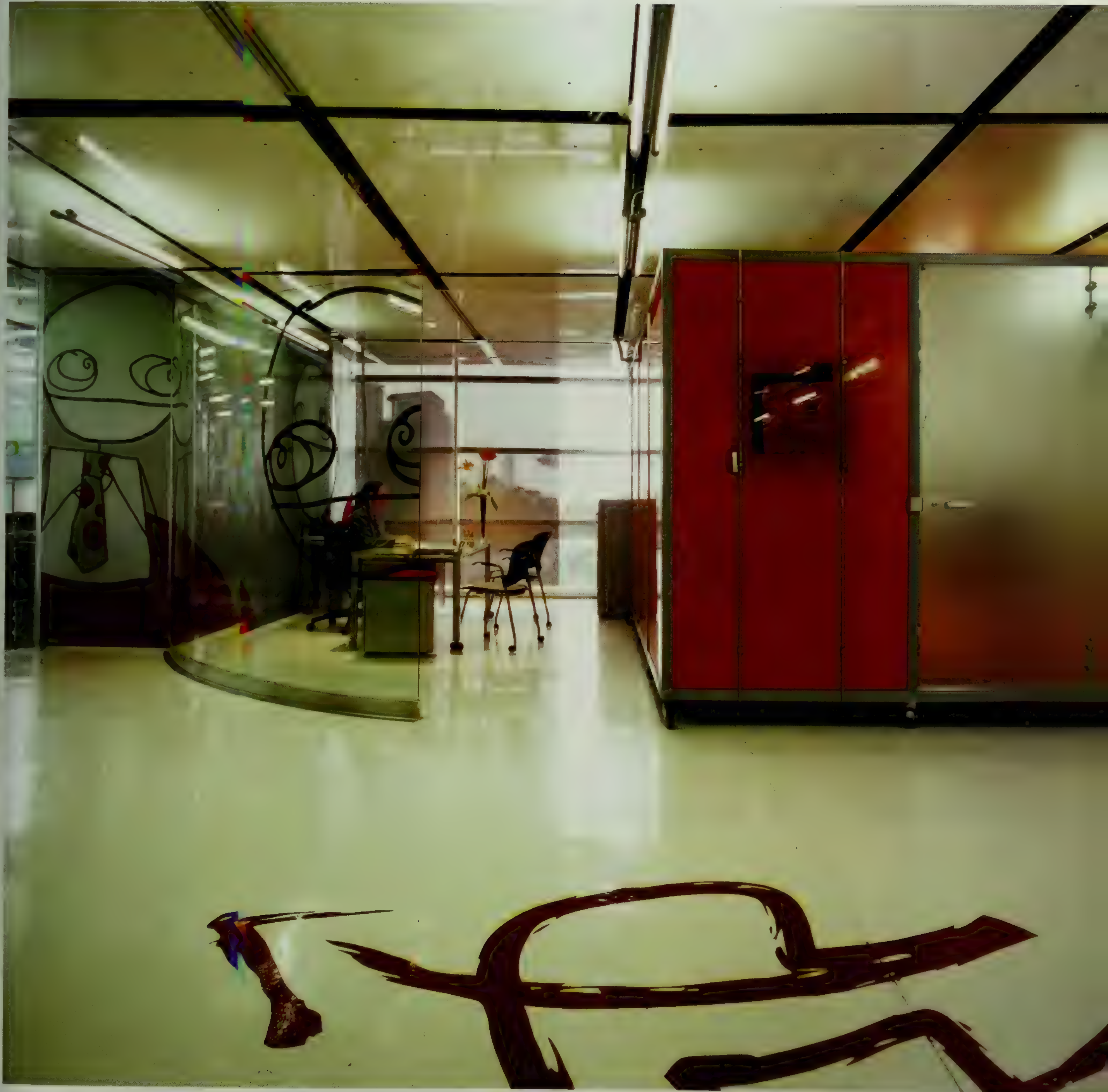


other. This feature, known as the "totem," reaches vertically through a central opening and visually unifies all the floors. Each monitor can be moved independently and can be programmed for different displays depending on the circumstance.

Underscoring the collaborative effort between architect and client, Garduño asked the ad agency to design the graphics used in the building. The result is a highly individualized space that stimulates creativity. Terán/TBWA general director José Alberto Terán explained, "Architecture is key for us. It sends a message to the clients we have and the ones we want to work with. We are a brand and this is our packaging."



The staircase encourages interaction among employees, while graphics are the outcome of a collaboration between architect and client.



TERRENCE DONNELLY CENTRE FOR CELLULAR AND BIOMOLECULAR RESEARCH

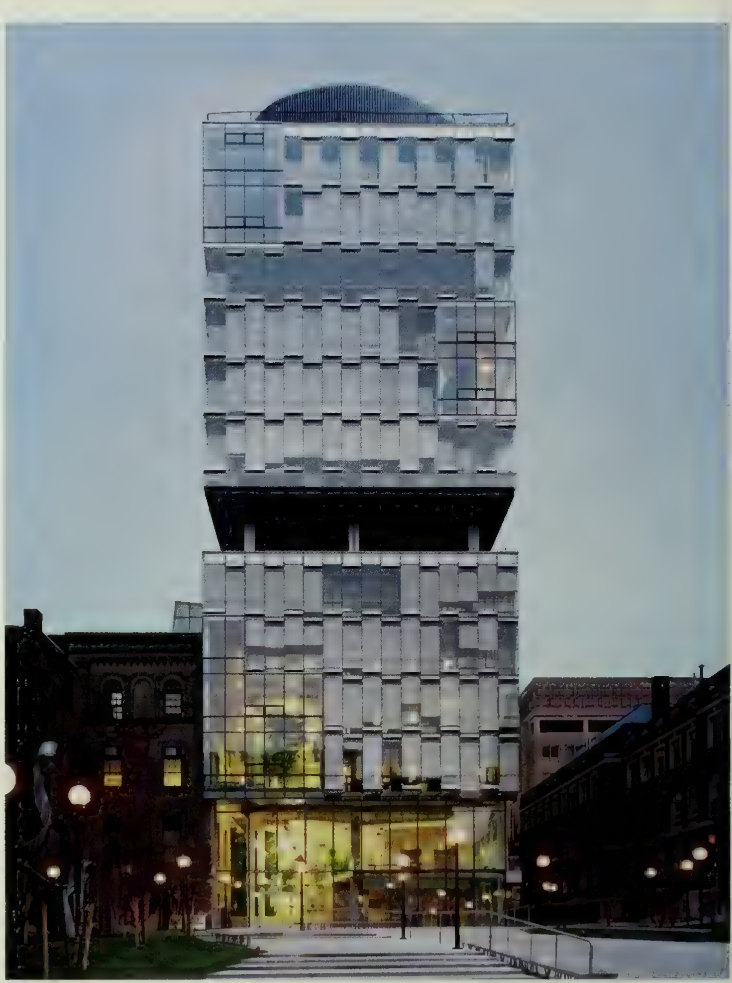
architectsAlliance and Behnisch Architekten

Wedged into a tight urban context, the Terrence Donnelly Centre for Cellular and Biomolecular Research (TDCCBR) at the University of Toronto responds sensitively to the historic buildings around it, and to the programmatic demands of its occupants.

The team of architectsAlliance and Behnisch Architekten equipped the building with many common spaces, knowing these would let researchers exchange ideas in casual settings. On the main public floor, a naturally ventilated winter garden serves staff, students, and visitors. On upper floors, lounges and a series of open stairs encourage interaction among the building's users. A juror noted that "this facility provides abundant employee amenities, including a garden and open space, even with considerable site limitations."

In an effort to fit a building not only taller than but in material contrast to its brick neighbors, the architects divided its vertical massing in two, with an intermediate mechanical floor providing this articulation. The Donnelly Centre literally attaches itself to the buildings that flank it, which provides an architectural analogy to the spirit of collaboration that it is intended to promote.

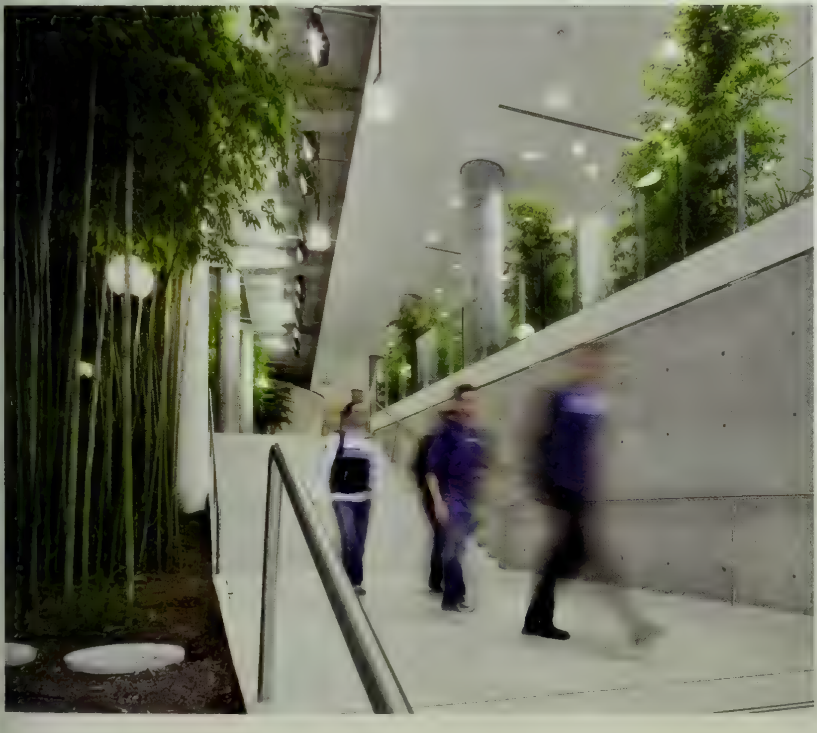
TDCCBR also responds to its ecological context. Laboratory floor plates are narrow to provide natural daylight and ventilation. Elevations are not only visually striking, but also work as high-performance curtain walls with double skins that reduce heat loss/gain.



Project: *Terrence Donnelly Centre for Cellular and Biomolecular Research, Toronto [*RECORD*, July 2006, page 128]*

Key players: *architectsAlliance and Behnisch Architekten (architect); Vanbots Construction Corporation (builder)*

Client: *Univ. of Toronto*

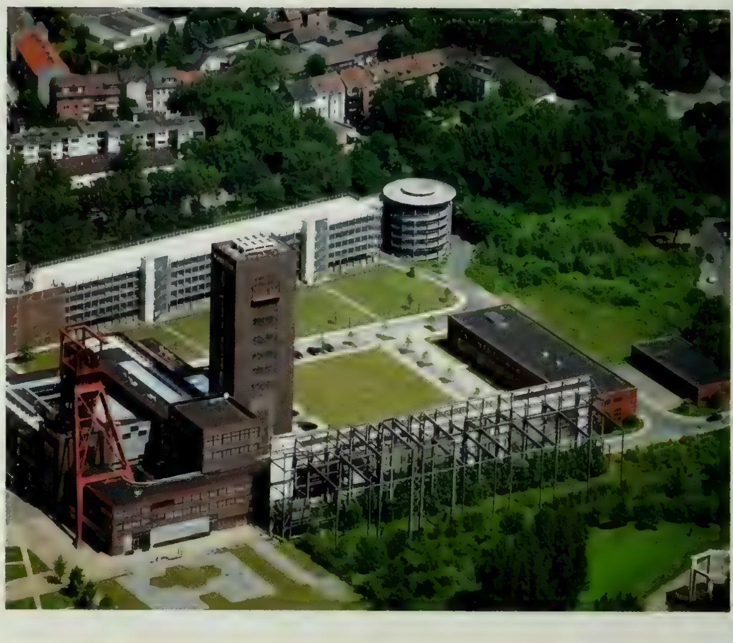


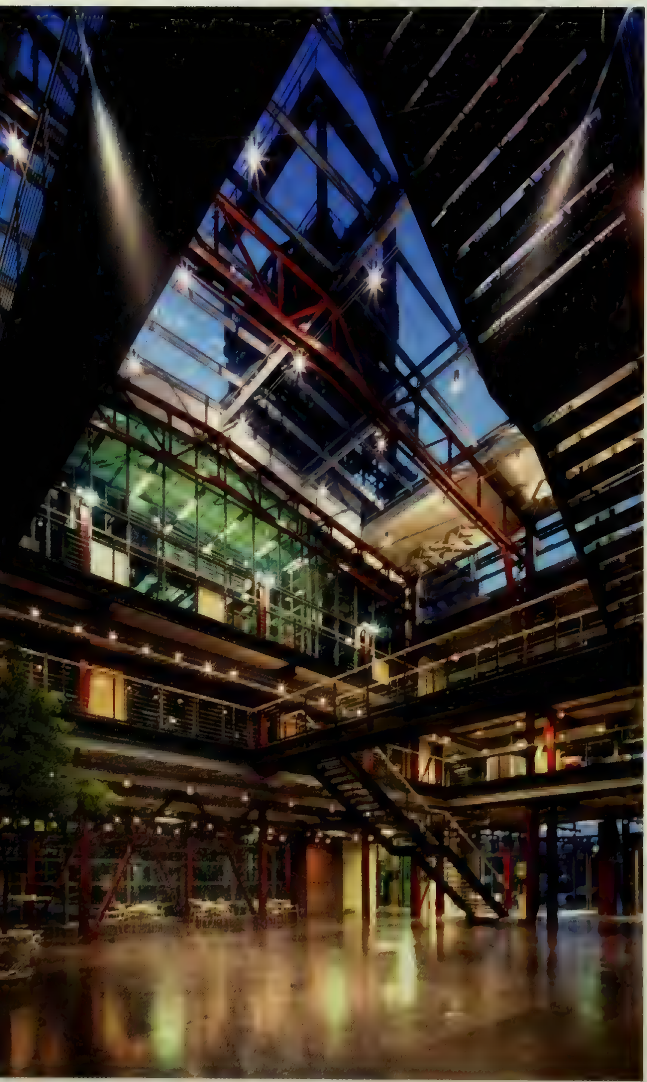
One of the leading research centers in Canada, the building now resides on what was once a closed street used for parking and building services.

TREUHANDSTELLE AT NORDSTERN
Architect Team THS/PASD

The new offices for TreuHandStelle (THS) at Nordstern represents "an extraordinary commitment to take something that was basically an obsolete toxic waste dump and turn it into a corporate headquarters and a beautiful place to work," says a member of the BW/AR jury. As such, it incorporates new features, such as a large, four-story atrium, dining facilities, and a park, as well as restored old elements, such as the shafts and winding tower of a 19th-century mine.

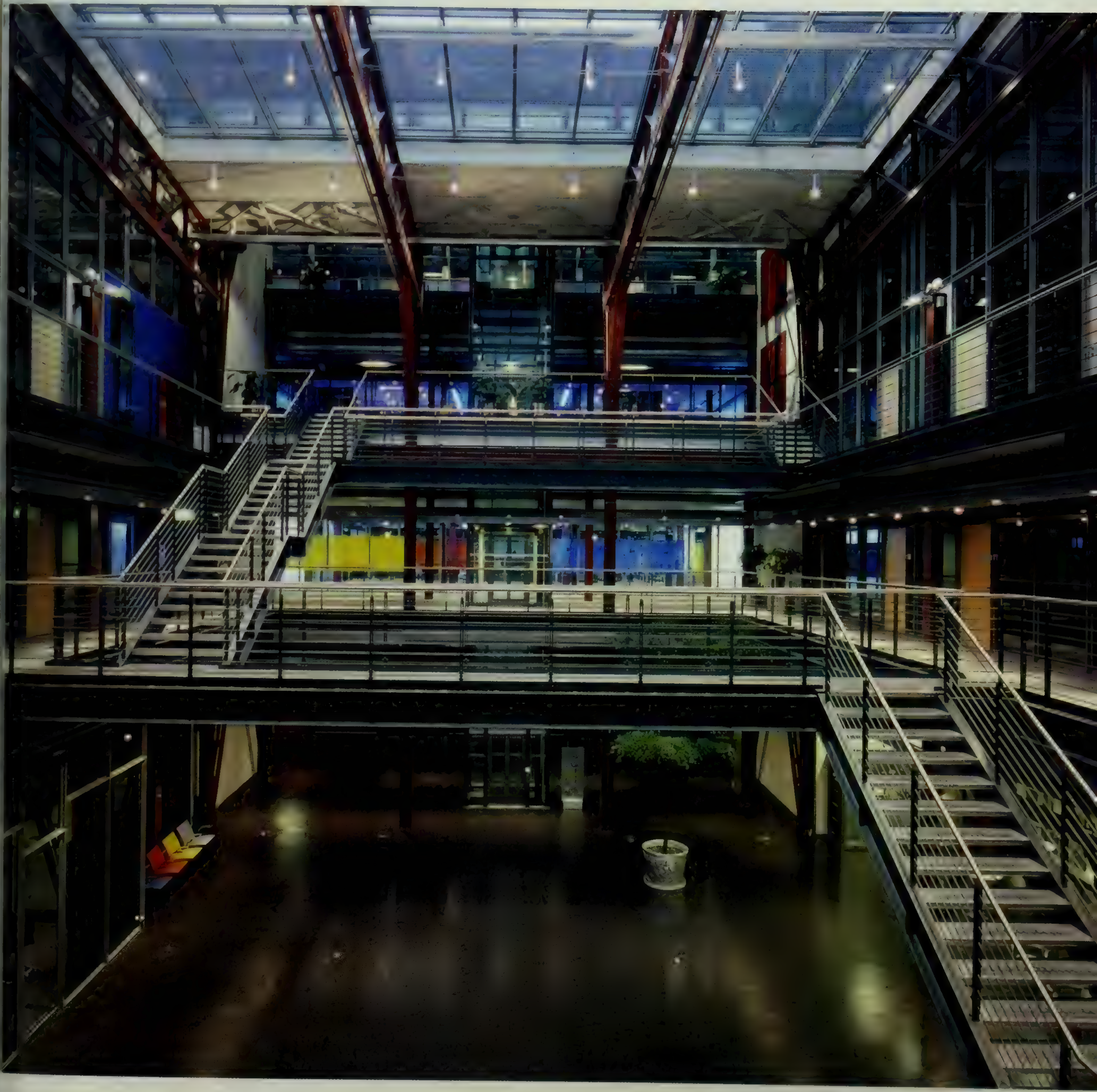
Founded in 1920 to provide housing for miners in Germany's industrial Ruhr region, THS diversified into a number of different fields when the mining industry began shrinking in the 1960s. This transition led to major corporate growth and the need for a bigger headquarters. Instead of building a completely new home office,





Project: *Nordstern, Administrative Building of TreuHandStelle, Gelsenkirchen, Germany*
Key players: *Architect Team THS/PASD (architect)*
Client: *TreuHandStelle*

Linked by a great hall, the new offices are open and interactive. Much of the original structure remains, but it now has large windows flooding the building with light.



THS and its architects decided to retain a link to its mining heritage by adapting and reusing Nordstern—a decommisioned Ruhr valley coal mine.

Renovation work included cleaning the industrial waste, replacing corroded steel, inserting ribbon windows into an otherwise solid facade, and restoring the mining shafts and winding tower that had been designated for preservation. The new windows and open spaces of the building prompted a juror to note that "it is clean and filled with light but maintains the grittiness."

Though the mines are inactive, they fell under the watch of the National Mining Authority, and still emitted methane. The architects implemented a system to safely drain this hazardous gas and put it to use as energy for the building's operation.

The surrounding landscape features stunning river valley vistas and a lawn for recreation, which has become popular not only with employees, but also with the larger community.

The architects adapted the original industrial spaces of Nordstern into large, open, flexible offices. Old and new coexist in the adaptive reuse of this coal-mine facility.

GENZYME CENTER
Behnisch Architects and Behnisch Architekten

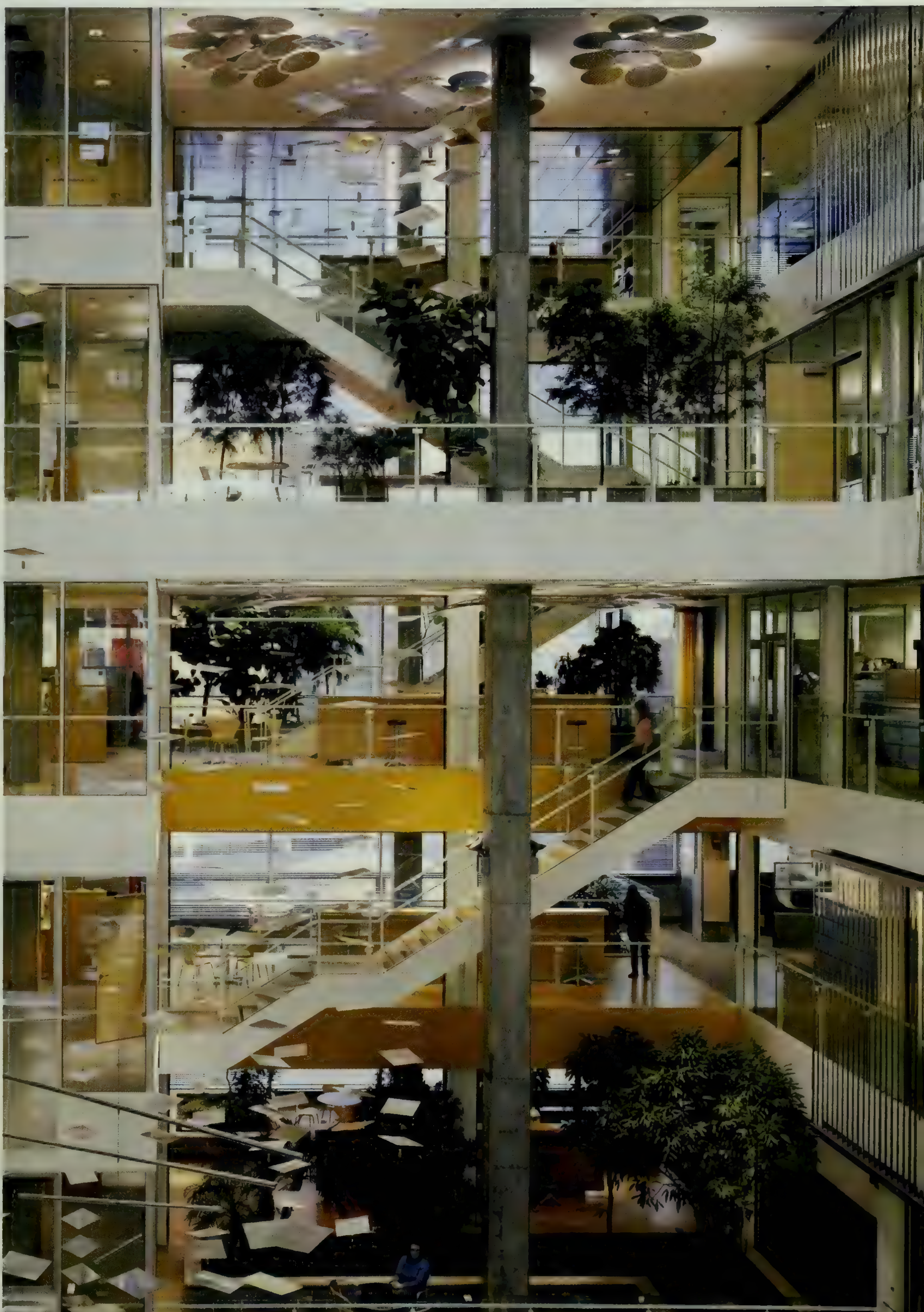
With its visionary sustainable design coupled with elegant aesthetics, this LEED Platinum–certified building stands as a model of architecture that is a steward both to its occupants and to the environment.

As it undertook this project, Genzyme committed itself to providing a healthy work environment for its employees. Sustainable features include a ventilated double skin that blocks heat gain/loss, a green roof, and natural light for 75 percent of the work spaces. An atrium provides natural light and ventilation, but it also offers open, communal space with gardens, cafés, and open staircases. The client estimates that the building's operating costs are 42 percent less than a conventional office building.

A member of the jury praised the building, noting that a "spec lab is already an innovative idea; add to that an incredibly rich working environment. Daylight and a highly sophisticated use of sustainable design generates a rich collaborative environment, encouraging transparency among the different parts of the company."

Supporting the notion that good design can indeed be good business, 58 percent of Genzyme Center's employees reported that they were more productive in this building than they had been in the company's former headquarters.

Project: *Genzyme Center, Cambridge, Mass. [RECORD, July 2004, page 102]*
Key players: *Behnisch Architects (architect and general planner); Behnisch Architekten (design architects, building and interior); Buro Happold (environmental consultancy, and structural and m/e/p engineer)*
Client: *Genzyme*



A grand atrium provides natural light and ventilation, along with communal spaces. Water features, gardens, and a large, hanging-chandelier sculpture animate the space.

BLOOMBERG HEADQUARTERS
STUDIOS Architecture

The success of the Bloomberg company can be attributed in part to its willingness to break rules. In designing the financial company's new headquarters, STUDIOS Architecture took a page from its client's book and broke a few rules itself. The result is what a juror called "interior spaces that generate tremendous productivity and creativity, fostering collaboration and communication."

Eschewing the anonymous entry-and-exit sequence via banks of elevators found in most office buildings, STUDIOS designed a process whereby employees enter through a single ground-floor security point, but then go to a sixth-floor reception area. Here, employees can grab complimentary drinks and snacks before heading to their work floor by stair or elevator.

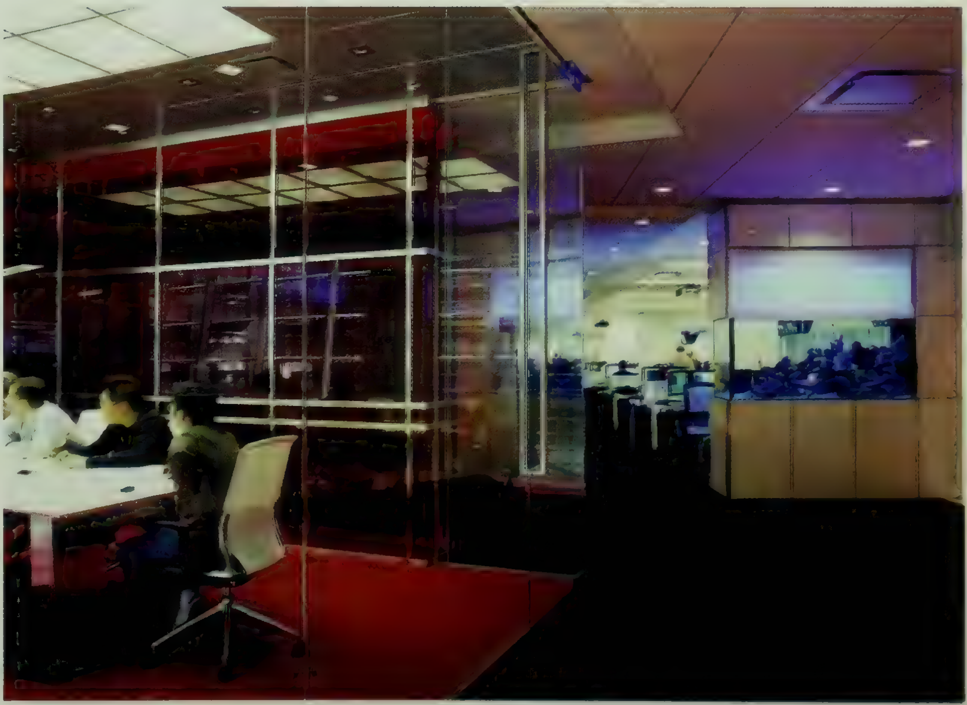
All of the 3,800 employees—including top executives—sit at open-plan workbenches. To compensate for the elimination of private offices, the architects doubled the number of conference rooms. These are enclosed by glass to maintain the sense of transparency valued by the company.

Disseminating information is at the core of what Bloomberg does, and this is reflected in its headquarters. The architects used graphics throughout the building to deliver a steady stream of information. These LED displays include information like market data and news, and reports on employee events and achievements. As a foil to the flow of digital information, large-scale art objects enliven communal space.

Project: *Bloomberg Headquarters, New York City [RECORD, March 2006, page 138]*
Key players: *STUDIOS Architecture (interiors)*
Client: *Bloomberg LP*

PHOTOGRAPHY: © ERIC LAIGNEL

Bloomberg occupies a number of floors at 731 Lexington Avenue, a 55-story building and BW/AR finalist this year. The offices express the identity of the financial-information company, whose founder is now mayor of its hometown.



NOVARTIS INSTITUTES FOR BIOMEDICAL RESEARCH

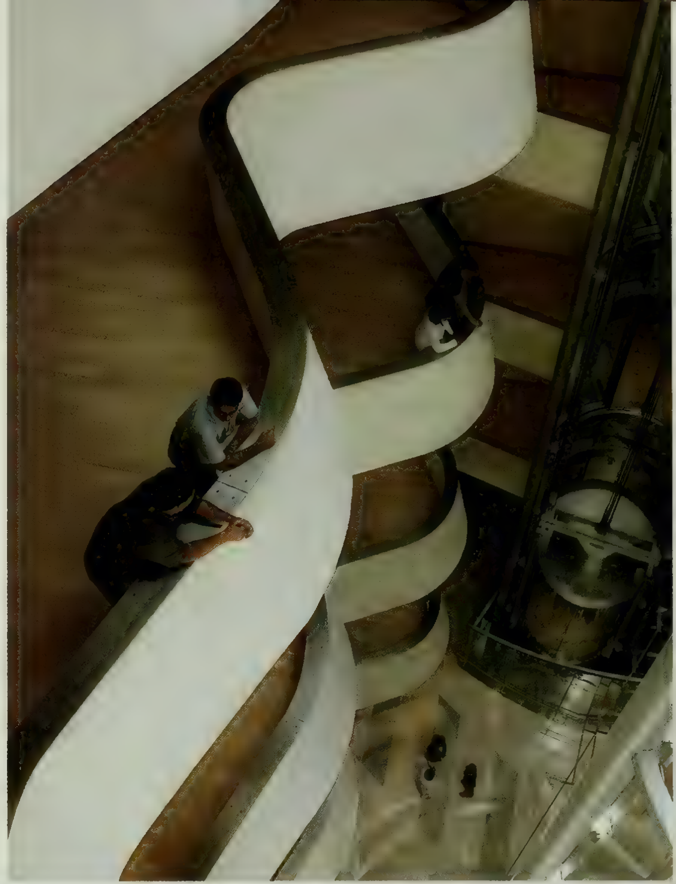
The Stubbins Associates

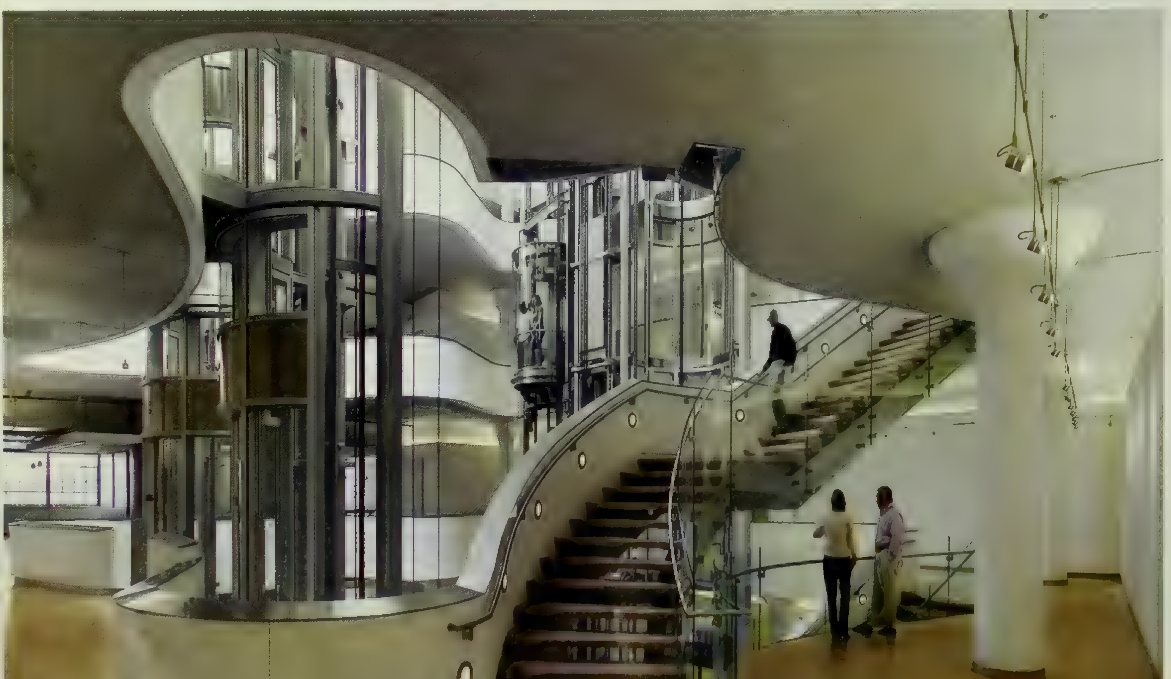
Convinced that interaction and collaboration are vital to the science of drug discovery, Novartis wanted a space that would promote what company executives call the "sociology of science." So when it decided to move its research headquarters from Basel, Switzerland, to Cambridge, Massachusetts, the international pharmaceutical giant set about making its building support that goal.

Stubbins Associates proposed a solution that was as unconventional as the challenge was bold: to transform a Necco candy factory built in 1927 into a high-tech research facility. An attractive site close to other science companies and MIT, along with large windows and open spaces, made the building amenable to reuse as an innovative workplace.

But to turn the candy factory into a cutting-edge research facility, the architects needed to make major alterations. To maximize openness and interaction, they created a central atrium that spans all six floors of the building.

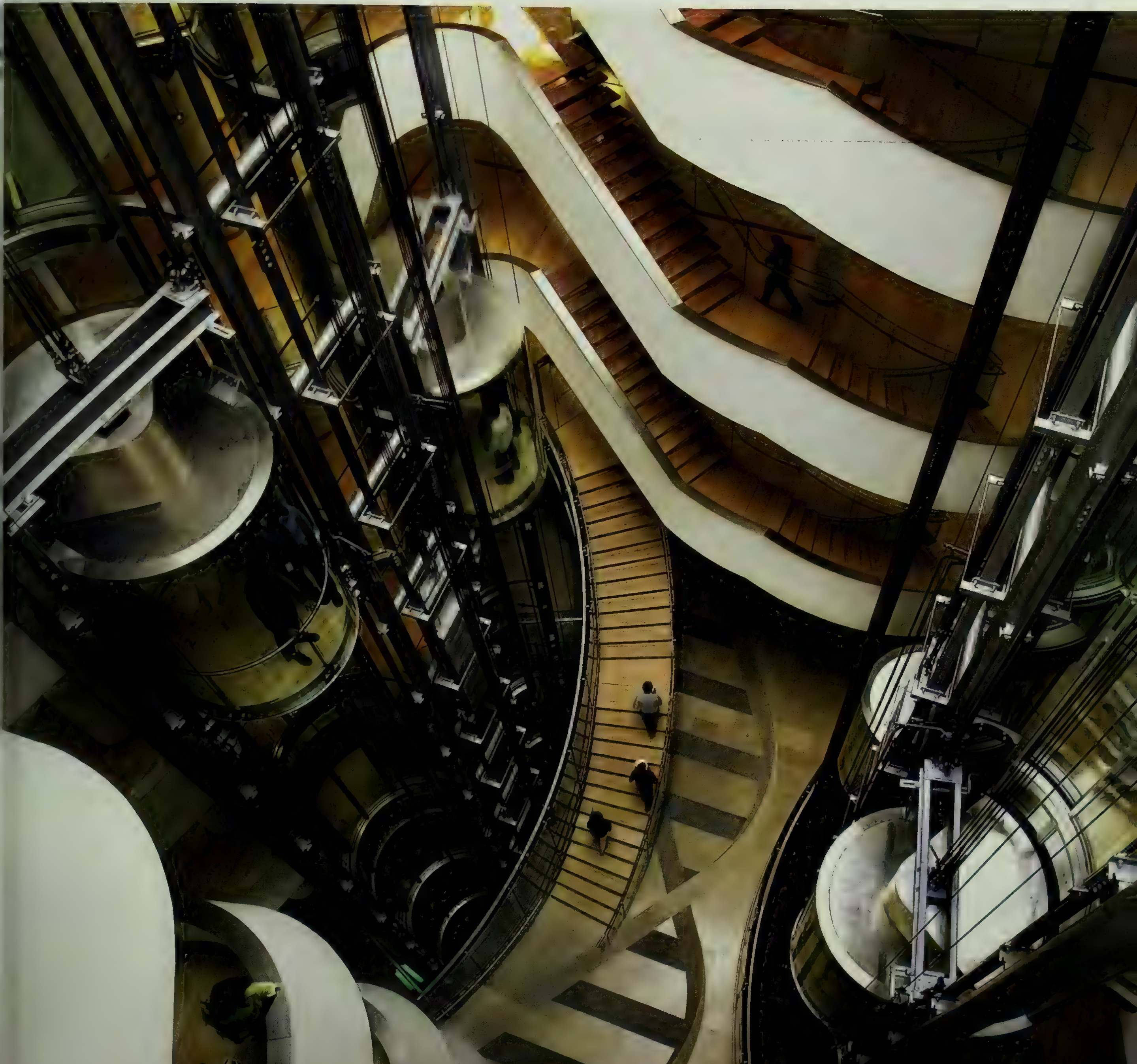
Wherever possible, Stubbins removed walls to open the space. When partitions were needed, the firm used glass walls to avoid compromising visual connectivity.





Project: *Novartis Institutes for BioMedical Research*
Key players: *The Stubbins Associates (architect); John Moriarty & Associates (construction manager)*
Client: *Novartis Institutes for BioMedical Research*

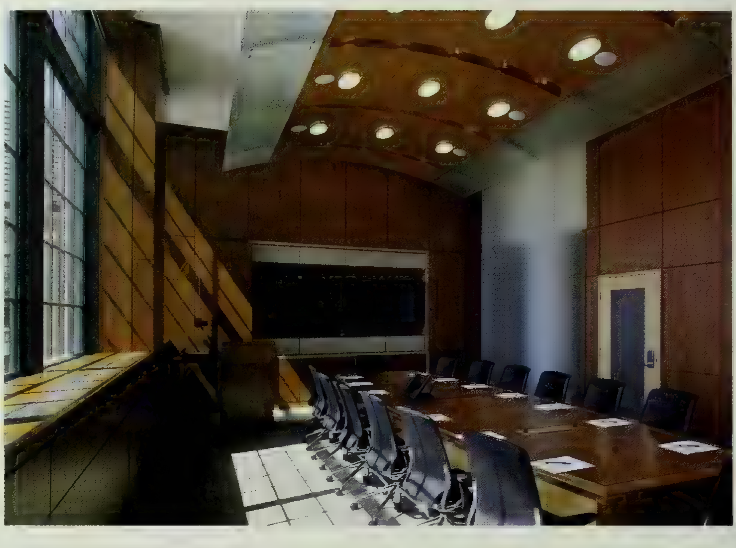
A curvilinear staircase winds through the atrium next to glass elevators. These features provide a sense of movement and activity.



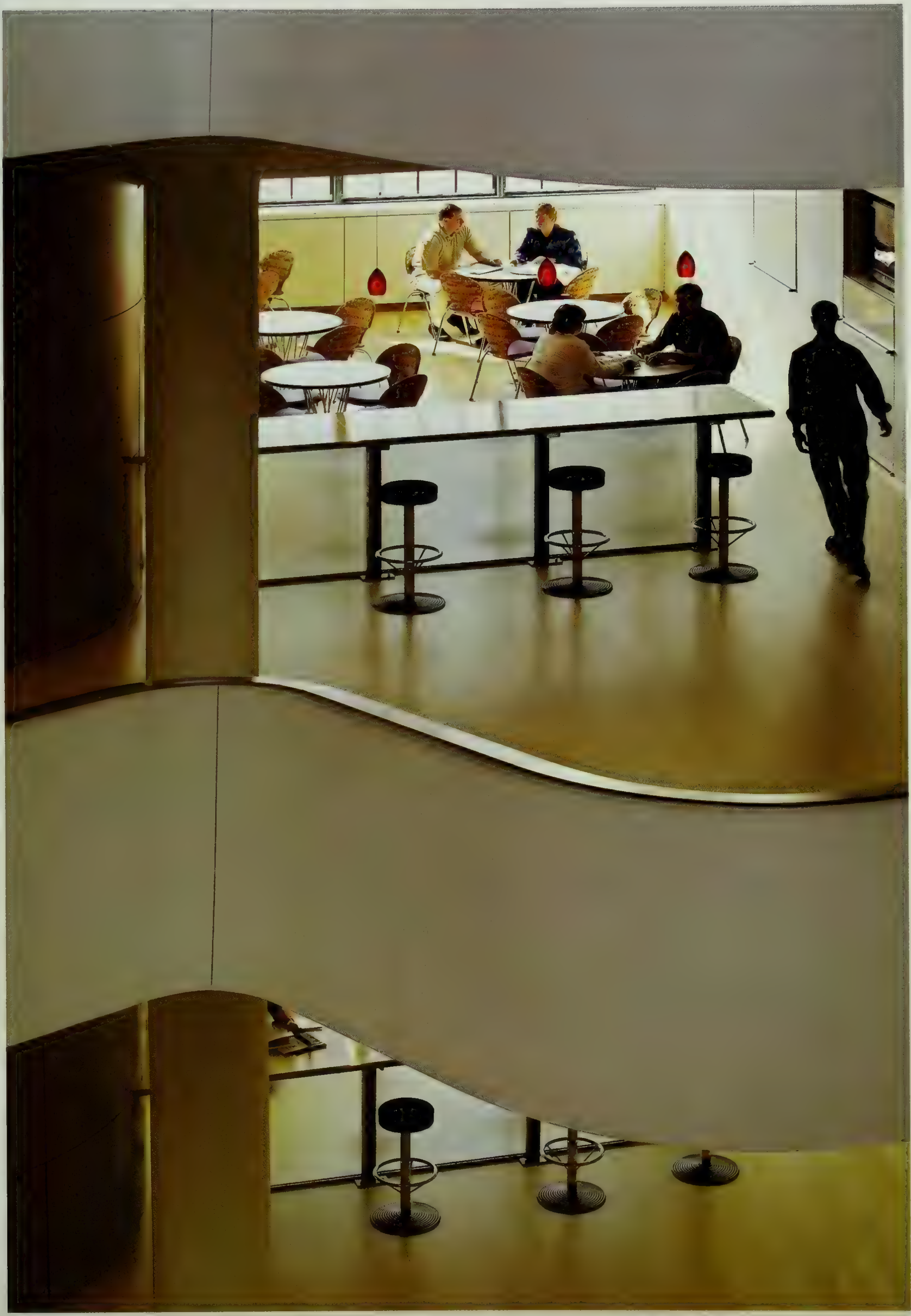
With only 18 months from original commission to occupation, the schedule was unforgiving. Stubbins associate principal Audrey O'Hagan said that because of the short time line, "this project was not just design innovation—it was process innovation as well," adding that "all decisions had to be made simultaneously." In designing a 500,000-square-foot building in such a short time, the architects had to make design decisions at the same time as budget, scheduling, and construction decisions. And they had to work in close conjunction with the builder, who would implement decisions immediately.

A jury member noted that "in an industry that competes heavily with its peers for talent, the building's design makes Novartis a very attractive place to work by bringing daylight deep into the offices, and by making it open and interactive."

Statistics agree with that assessment. Novartis reports that throughout the company, it retains one of every four people it recruits. At Cambridge, it retains one of every two, demonstrating the business potential of good design.

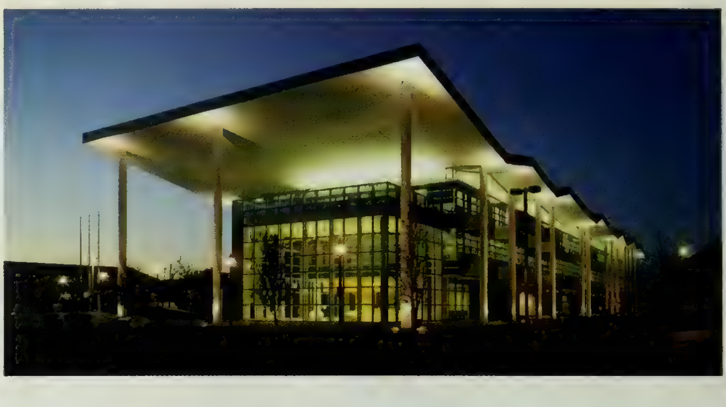


Break areas and cafés located off the atrium provide opportunities for interaction. Large windows give this open space abundant daylight.



SARASOTA HERALD-TRIBUNE MEDIA HEADQUARTERS

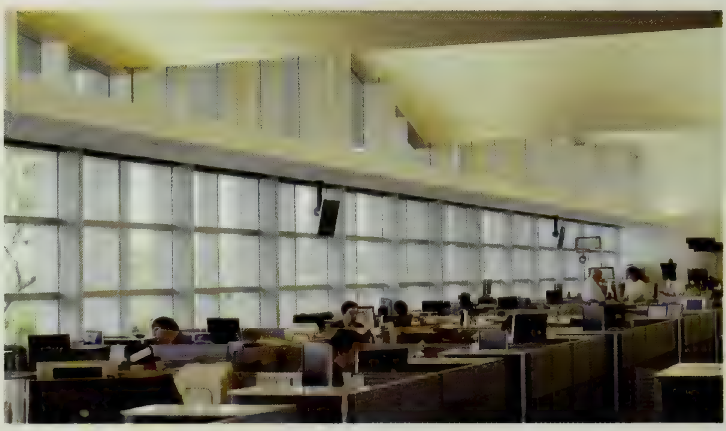
Arquitectonica



To facilitate the hurried communication between editors, reporters, and other employees, newspapers like to occupy offices with large floor plates. But such spaces often result in banal and sprawling office blocks. The Sarasota Herald-Tribune Media Headquarters designed by Arquitectonica demonstrates that large-floor offices can have great visual appeal.

After outgrowing its former home where departments were isolated from each other, the newspaper needed a more open work environment. So Arquitectonica designed a 70,000-square-foot headquarters where all of the editorial functions happen on one floor, and all business operations on another. A smaller ground floor serves as the main entry with space for exhibitions. By elevating two large floors above a small entry level, the architects created a dynamic form in which the building seems to be floating above ground. It also accommodates parking on grade, underneath the overhanging upper floors.

A folded roof hovers over the building, breaking up its horizontality and enlivening the expansive third-floor newsroom by reflecting light differently throughout the day. Its generous overhangs provide shaded space on the ground and on third-floor terraces.



Project: *Sarasota Herald-Tribune Media Headquarters, Sarasota, Fla.*
Key players: *Arquitectonica (architect); Turner (construction manager)*
Client: *The New York Times, Inc., parent of the Sarasota-Herald Tribune*

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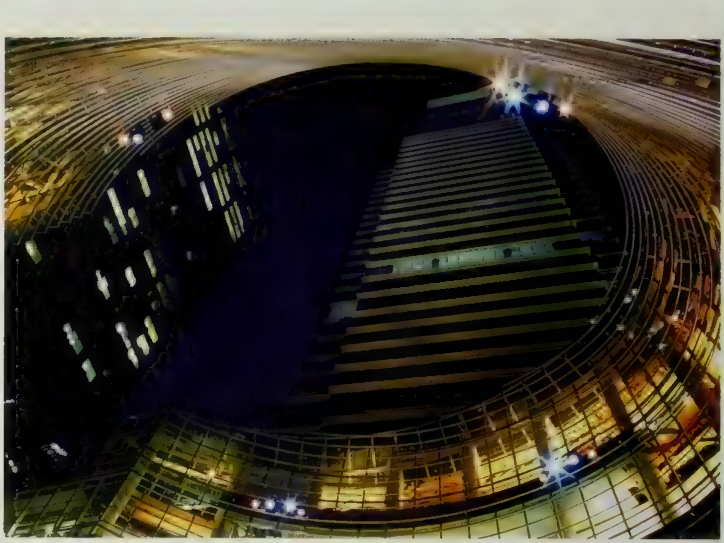
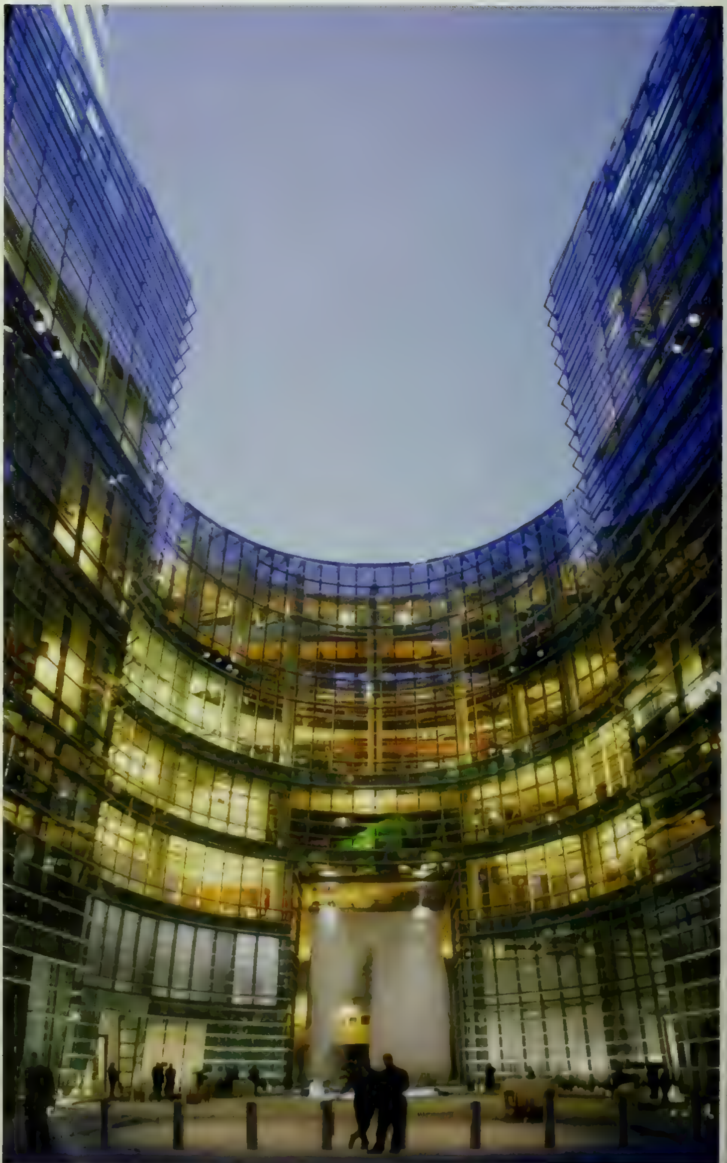
731 LEXINGTON AVENUE
Pelli Clarke Pelli Architects



Occupying an entire city block between 58th and 59th Streets on Manhattan's East Side, 731 Lexington is a hybrid structure that accommodates manifold uses. These include the world headquarters of the financial and media information company Bloomberg LP, luxury condominiums, and retail, and the new location of Le Cirque restaurant. Designed by Pelli Clarke Pelli, this building manages to articulate each of these uses, while maintaining a unified identity.

Composed of a 10-story office block and a 55-story tower with offices on the lower floors and residential units on top, the two buildings connect at the center of the city block to form an elliptical courtyard. Acting as a bridge between the two buildings and as the reception area for Bloomberg, this curving structure creates a voided space above the courtyard. Opening to 58th and 59th Streets, this space maximizes grade-level uses free from the distractions of the busy streets outside. The residences and the restaurant use this entry plaza as well.

Here, views of the tower above, visible up to the top, reveal a translucent glass lantern that glows with variable white light. This skyline-scale feature signals a building whose form unites many disparate functions.



Project: *731 Lexington Avenue, New York City*
Key players: *Pelli Clarke Pelli Architects (architect)*
Client: *Vornado Realty Trust*

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ALBERICI CORPORATION HEADQUARTERS

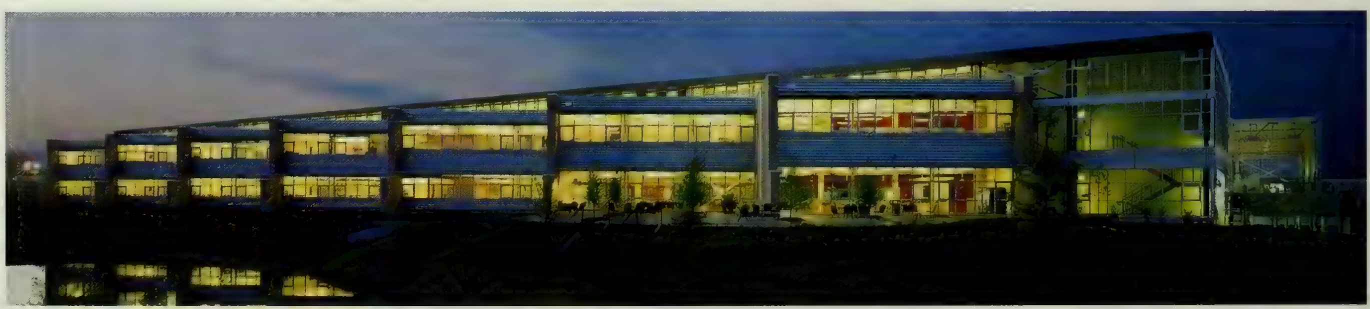
Mackey Mitchell Associates

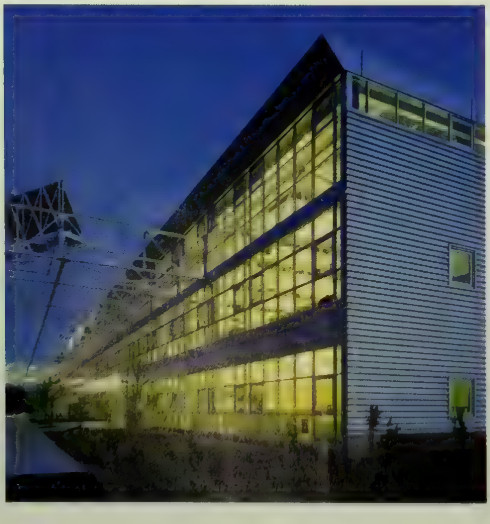
When its headquarters became crowded and outdated, St. Louis, Missouri–based construction services firm Alberici decided it needed a new home with a sweeping, open plan that would encourage teamwork. The solution to its problem came by way of the adaptive reuse of a metal-goods manufacturing and distribution facility on a 14-acre brownfield site.

Mackey Mitchell Associates oversaw the transition of the manufacturing shed into a Class A LEED Platinum–certified office building. Seeing the old structure's tripartite plan, the design team decided to remove its middle roof deck to create a long courtyard with a building on one side for offices and a building on the opposite side for parking. Organized around three large atria, the new headquarters features abundant daylight and ventilation, with a minimal number of interior boundaries. Ninety percent of its occupants have direct views to the outdoors.

A sawtooth addition to the building's southwest facade mitigates low sunset exposure and breaks up the building's massing. The overall result is a highly sustainable structure that gives the company much-needed space but does not impose the ecological impact that typically comes with expansion.

PHOTOGRAPHY: © LISE O'BRIEN ND BOTTOM RIGHT), DEBBIE [illegible] (MIDDLE AND BOTTOM LEFT)





Project: *Alberici Corporation Headquarters, Overland, Mo.*
Key players: *Mackey Mitchell Associates (architect); Alberici Constructors (general contractor)*
Client: *Alberici Corporation*

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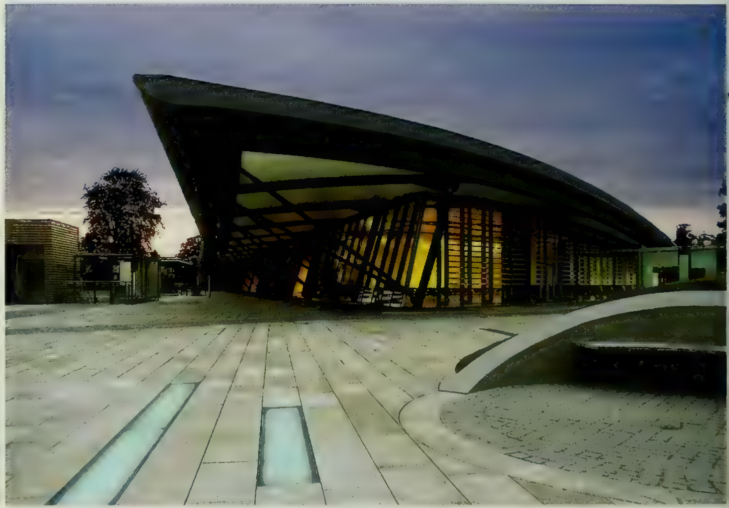
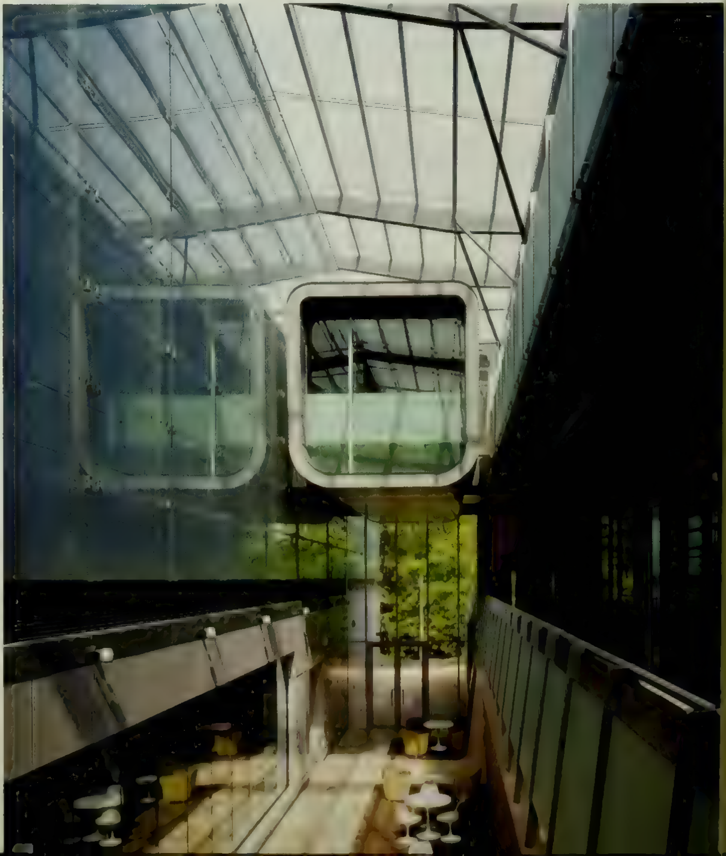
THE WELLCOME TRUST SANGER INSTITUTE CAMPUS EXPANSION
NBBJ

To accommodate an expansion of its biomedical research program, The Wellcome Trust Sanger Institute hired architects NBBJ to design an 184,000-square-foot expansion of its campus in Cambridgeshire, England. The client used the project as an opportunity to reevaluate its program, and to generate greater collaboration among its employees.

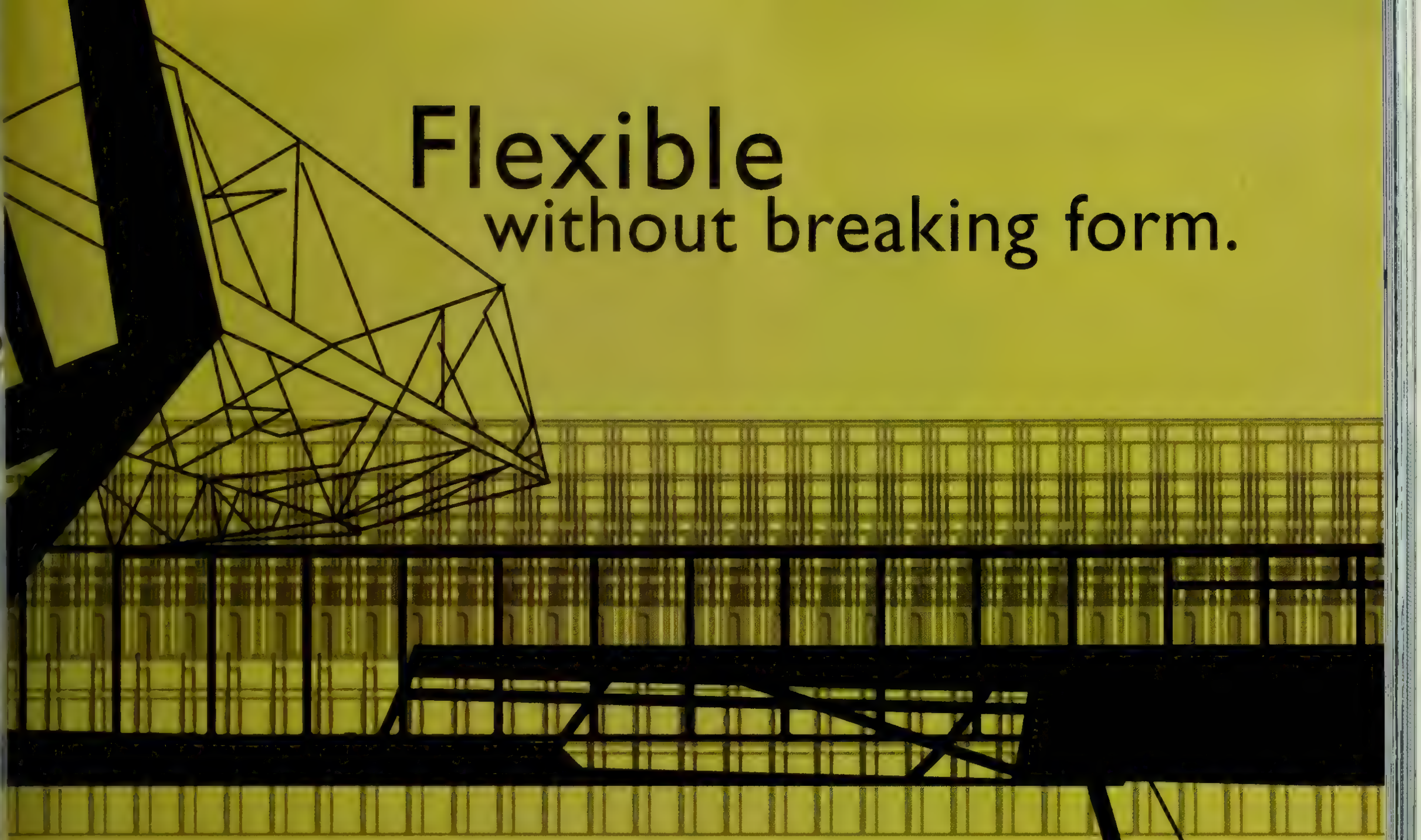
NBBJ conceived a campus that would promote such interaction by grouping research offices together to create an open plan with long rows of lab benches. Teams can now interact and share resources more freely. The architects placed them around a central square so that circulation between buildings now happens in this shared open space. They moved amenities such as sports facilities and dining areas out of individual laboratory buildings and into separate structures across the plaza to encourage employees to walk around the campus and not stay in just one area.

Buildings at the campus edge are tucked partially below grade, and landscape corridors run through the campus to preserve views of the rural Cambridgeshire landscape. The project's sensitivity to the pastoral setting belies the energy of the institute's research. Its director, Allan Bradley, explained that "the new facilities will enhance our efforts to provide real benefits for researchers as well as nonscientists worldwide."





Project: *The Wellcome Trust Sanger Institute Campus Expansion, Hinxton, Cambridgeshire, U.K.*
Key players: *NBBJ (architect), Mace (construction manager)*
Client: *The Wellcome Trust Sanger Institute*



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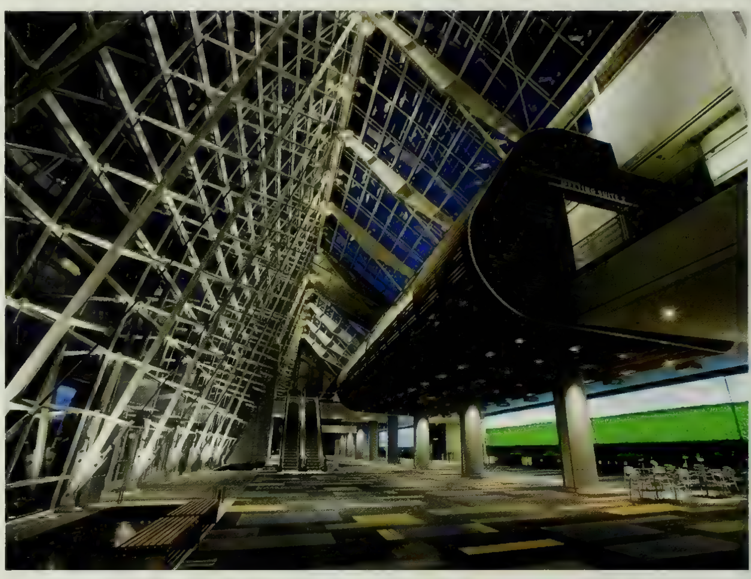
FINALIST

VIRGINIA BEACH CONVENTION CENTER

Skidmore, Owings & Merrill

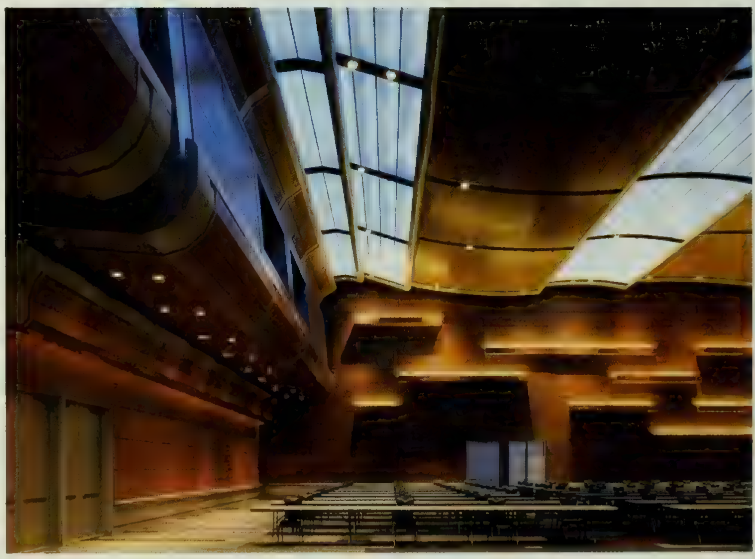


Combining references to its region's history with cutting-edge technological features, the Virginia Beach Convention Center has established itself as an anchor for the revitalization of the city's beach district. Designed by Skidmore, Owings & Merrill, the convention center supports the city's plan to redefine itself as a year-round destination.

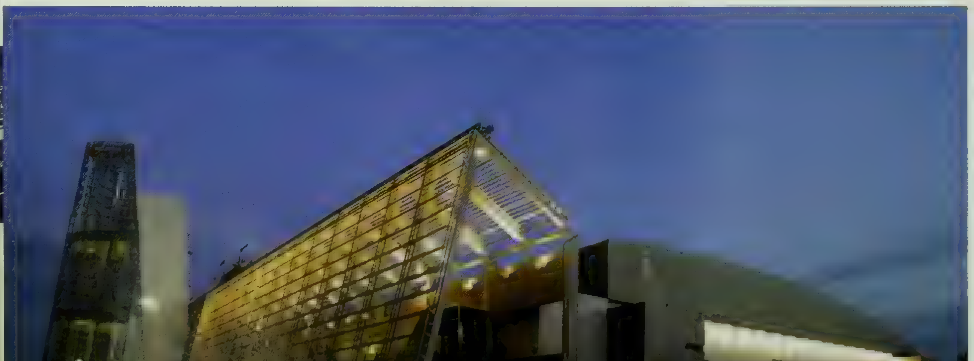
Consisting of enormous exhibition halls and a custom lighting system with a palette of more than 17 million colors, the space is highly flexible to accommodate a vast array of groups. A 180-foot-long video display—the largest of its type in the U.S.—allows for further modulation of space, and has attracted art and video events.

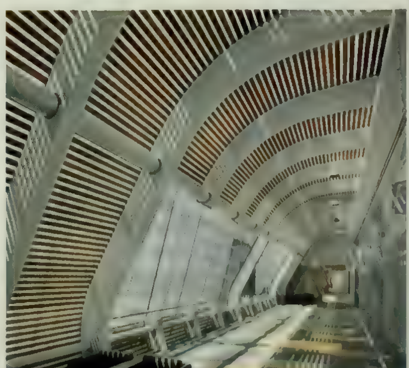
Integrating wood into the otherwise glass-and-steel construction gives the center a warm tone, and provides a reference to the maritime materials that characterize the area.

The building has served as a stimulus for further development in the area, including a mixed-use "City Center" complete with hotel and entertainment offerings. As a further testament to the economic growth spurred by the convention center, a transit system is now in development for the area.



Project: *Virginia Beach Convention Center, Virginia Beach, Va.*
Key players: *Skidmore, Owings & Merrill (architect)*
Client: *Virginia Beach Convention Center*





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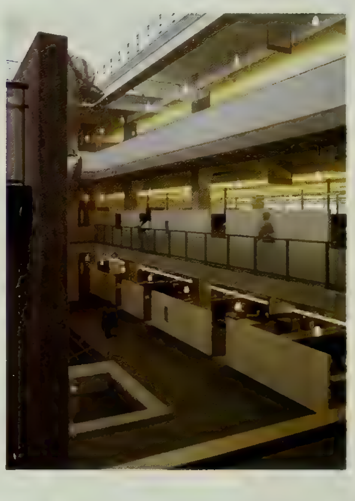
CALIFORNIA DEPARTMENT OF HEALTH SERVICES
STUDIOS Architecture

Bringing together 850 employees who were formerly housed in five different buildings, this office building for the California Department of Health Services is intended to be the new public face for the department.

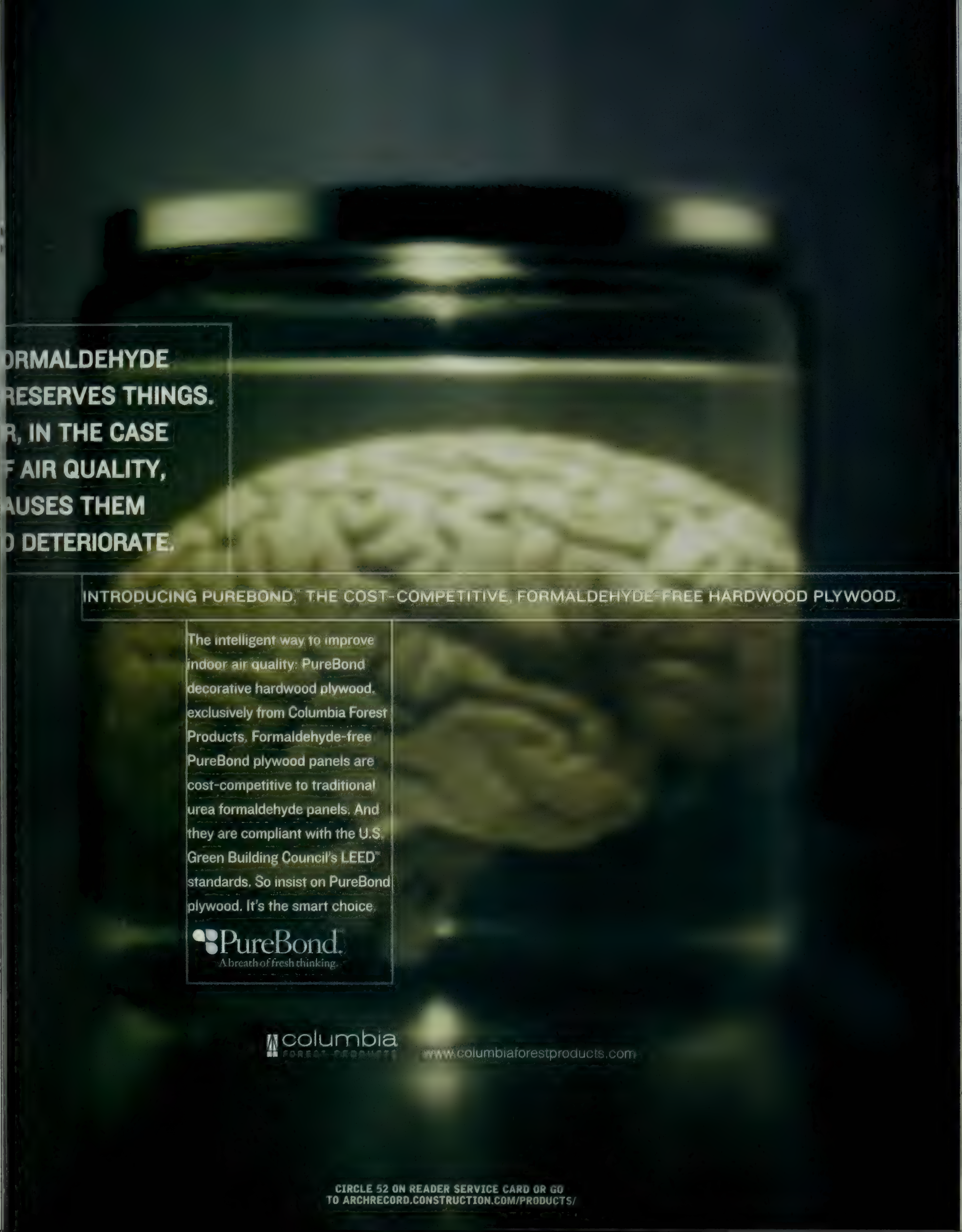
Aware that the offices had historically been physically isolated, STUDIOS Architecture created a single facility to generate organizational unity. Designed as an interactive community, all offices are open and linked by a central atrium.

Because of its involvement with epidemic management and combating bioterrorism, the Department of Health Services requires tight security at all of its buildings. With this facility in Richmond, STUDIOS designed a building that is at once secure and welcoming. The entry courtyard signals the building's openness, and the central atrium reinforces this notion, and acts as a multipurpose communal space for employees.

Underscoring its commitment to health, the new building boasts many sustainable features, evidenced by its high assessment in California's "Energy Efficiency and Sustainable Building Measures" program.



Project: *California Department of Health Services, Laboratory Campus Phase III, Richmond, Calif.*
Key players: *STUDIOS Architecture (architect)*
Client: *State of California*



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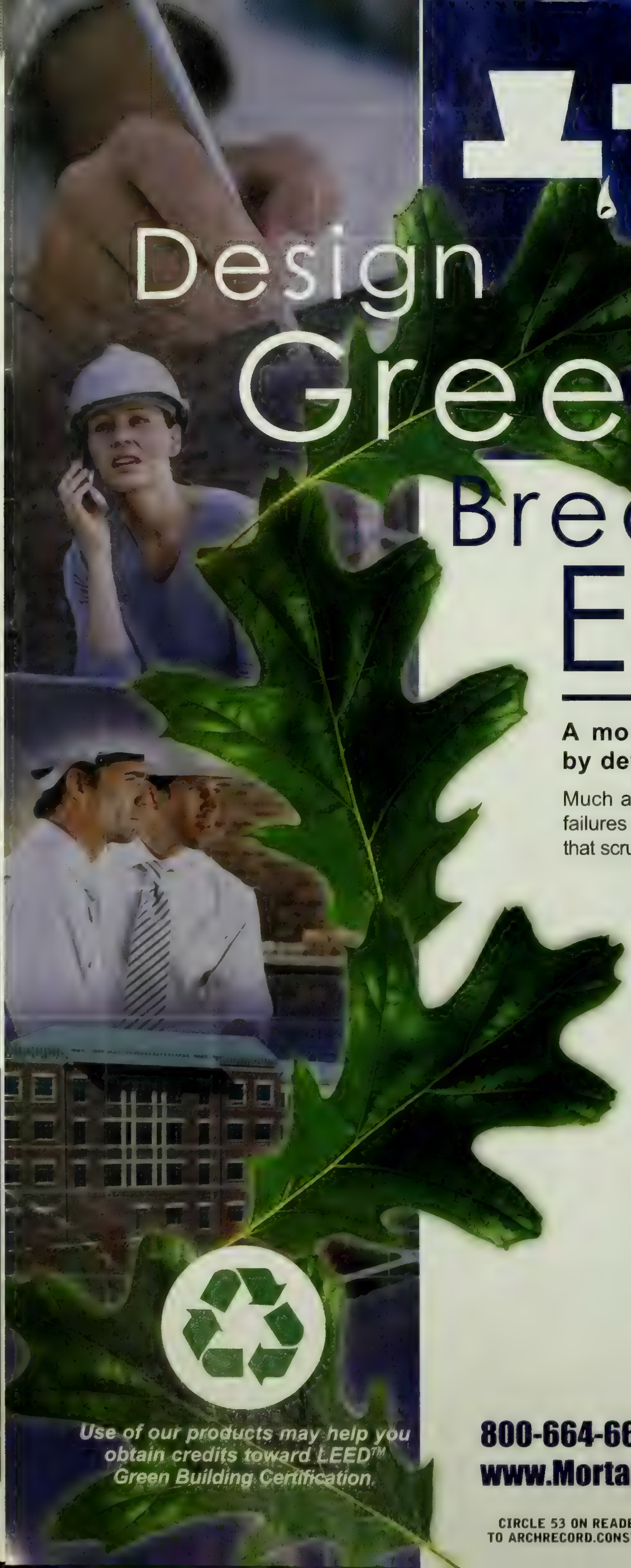
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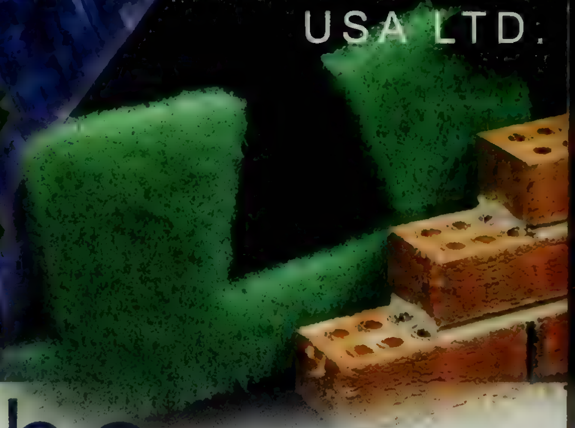

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Much attention has been focused in recent years on mold caused by failures of internal systems, like plumbing and air conditioning. Thanks to that scrutiny, serious internal failures have become somewhat less common.

Meanwhile, though, moisture constantly assaults a building's exterior walls–from rain, snow, soffit-leakage, or condensation–and has done so forever. As a result, it's inevitable that moisture will infiltrate the dark cavities of exterior masonry walls.

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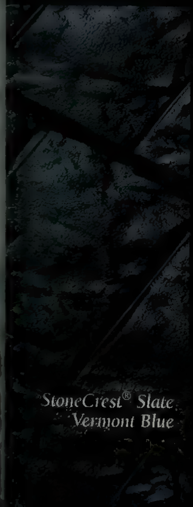
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The Curve comes back

By Suzanne Stephens

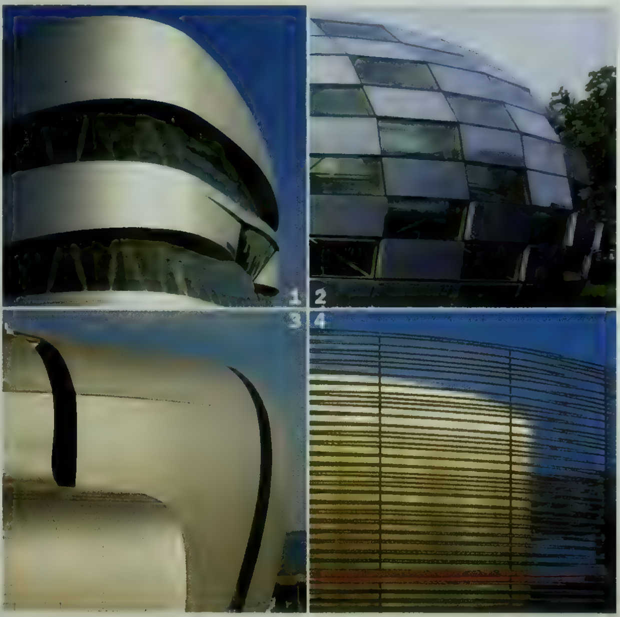
So, it's not really a comeback, since the curve never really left architecture. But it does seem the curved line or surface appears and reappears in Modern architecture as a minor motif, while the orthogonal grid always maintains its hegemony. To be sure, in the early modern days of the late 19th century, the curve—in the form of a sinuous line—dominated the Art Nouveau movement. The curve cropped up in streamlined architecture and design of the 1930s, but orthogonally minded architects doubted its Modernist rigor. Then in the mid-20th century, the curve—as a concave and convex surface—gained an enormous foothold in the imagination of architects and engineers, spurred by advances in poured-in-place concrete construction. Even though Le Corbusier startled the architectural world with his nonrationalist Notre Dame du Haut at Ronchamp of 1955, the concrete buildings of Pier Luigi Nervi, Felix Candela, Oscar Niemeyer, along with Frank Lloyd Wright, Eero Saarinen, and Jorn Utzon, were to vividly define the fluidly muscular structural expressionism of the postwar period.

Nevertheless, in subsequent years, Modern architects still found the curve to be suspect, owing its theatrical roots in the Baroque or its decorative lineage from the age of the Rococo. The revival of that historicist background during the 1980s Postmodern period seemed to cater too much to a commodity culture. Even if William Hogarth had postulated in 1753, in his treatise, *Analysis of Beauty*, that the serpentine line—more attenuated than the Rococo curlicue—was basic to aesthetic experience, Modern architects still viewed its use as indulging in the cheaply gained effect.

But in the past two decades, the computer (and certain theoretical investigations) helped dismantle this lingering prejudice. As architect Greg Lynn demonstrated in essays and books in the 1990s, digital design would allow designers and fabricators to work with the curve volumetrically: Inside and outside of buildings flow together as a continuous surface and form that shape space in a dynamic continuum. Lynn's investigations into animation software [RECORD, December 1999, page 104], and his writing about programs such as those based on nonuniform rational Bezier spline curves (NURBS), described in his book *Animate Form* (1999), inspired others. Architect and educator Alicia Imperiale observed in 2000, "There seems to be an uncanny link between the desire to make smooth, continuous space and the way a NURBS system works."

During this period of digital ferment, philosophers such as Gilles Deleuze provided theoretical inspiration to architects by treating the baroque impulse with a new intellectual vigor, allying it to explorations of spatial depth, continuity, and infinity.

Since the late 1990s, buildings based on non-Euclidean geometry have been realized in steel, titanium, aluminum, concrete, and even brick. Through the application of computer programs, lasercutters, CNC milling, and robotics—and with the collaboration of inventive structural engineers—architects no longer need to rely on materials of a regulated, economically produced size. The architecture shown on the following pages elegantly illustrates the curve's newly won status achieved by such investigations.

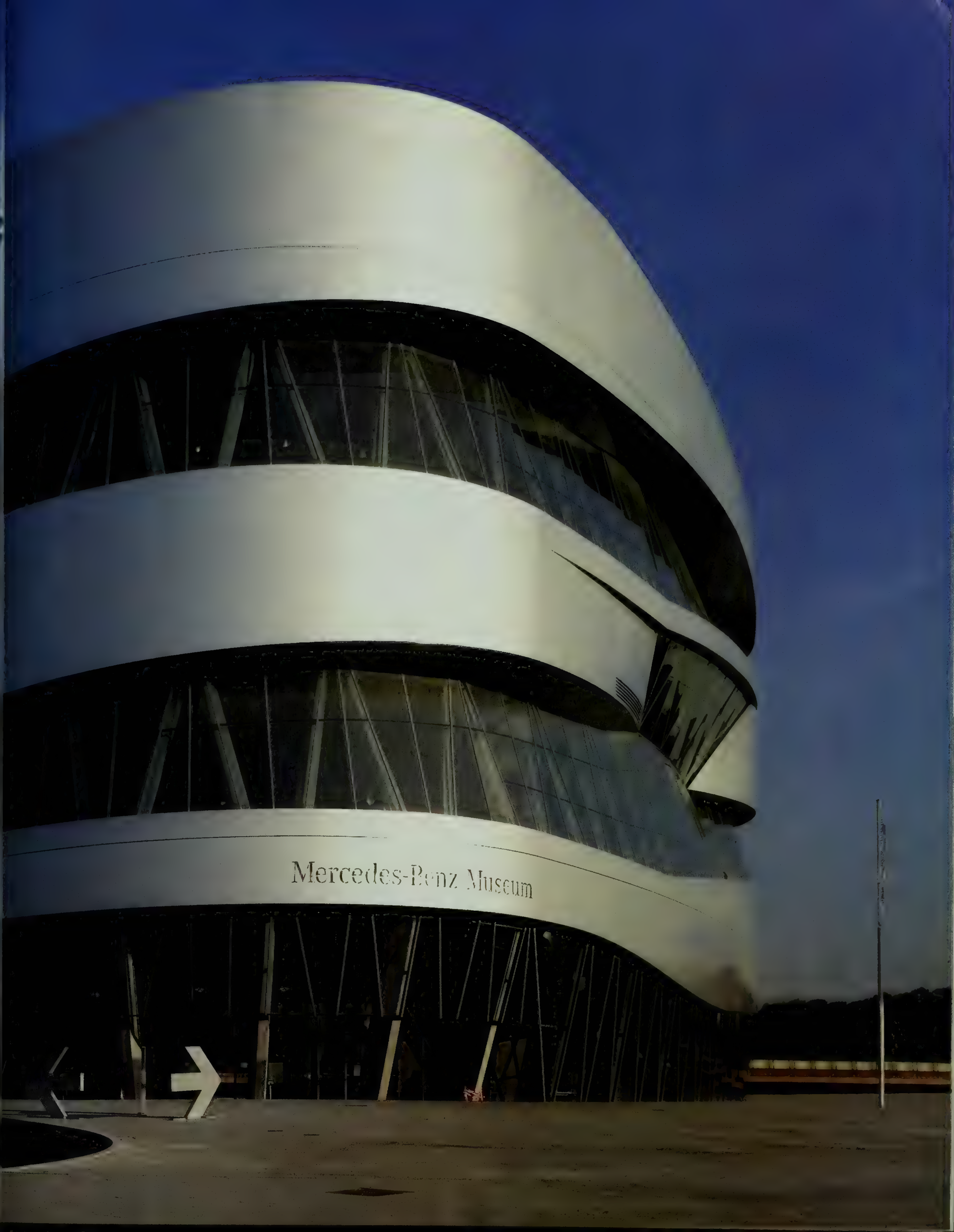


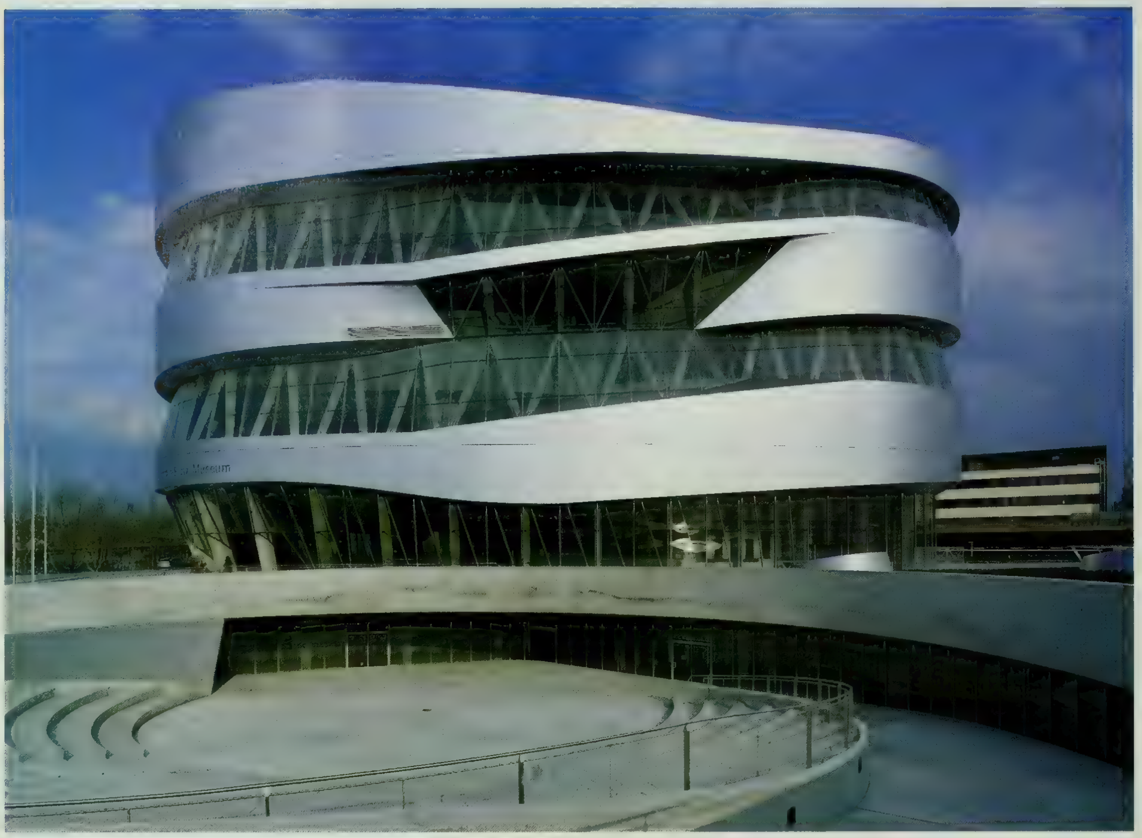
1. Mercedes-Benz Museum. 2. Free University Library.
3. University of Phoenix Stadium. 4. Badajoz Congress Center.

PHOTOGRAPHY: © DUCCIO MALAGAMBA (1); REINHARD GÖRNER (2); ROLAND HALBE (3, 4)

UN Studio cross-fertilizes a three-leaf-clover plan with a double-helix circulation for the **MERCEDES-BENZ MUSEUM** in Stuttgart

The museum occupies a 37,674-square-foot site at the just-opened Mercedes-Benz World. Nearby is the main plant for DaimlerChrysler, the parent company in Stuttgart-Untertürkheim, on the city's outskirts.


Mercedes-Benz Museum



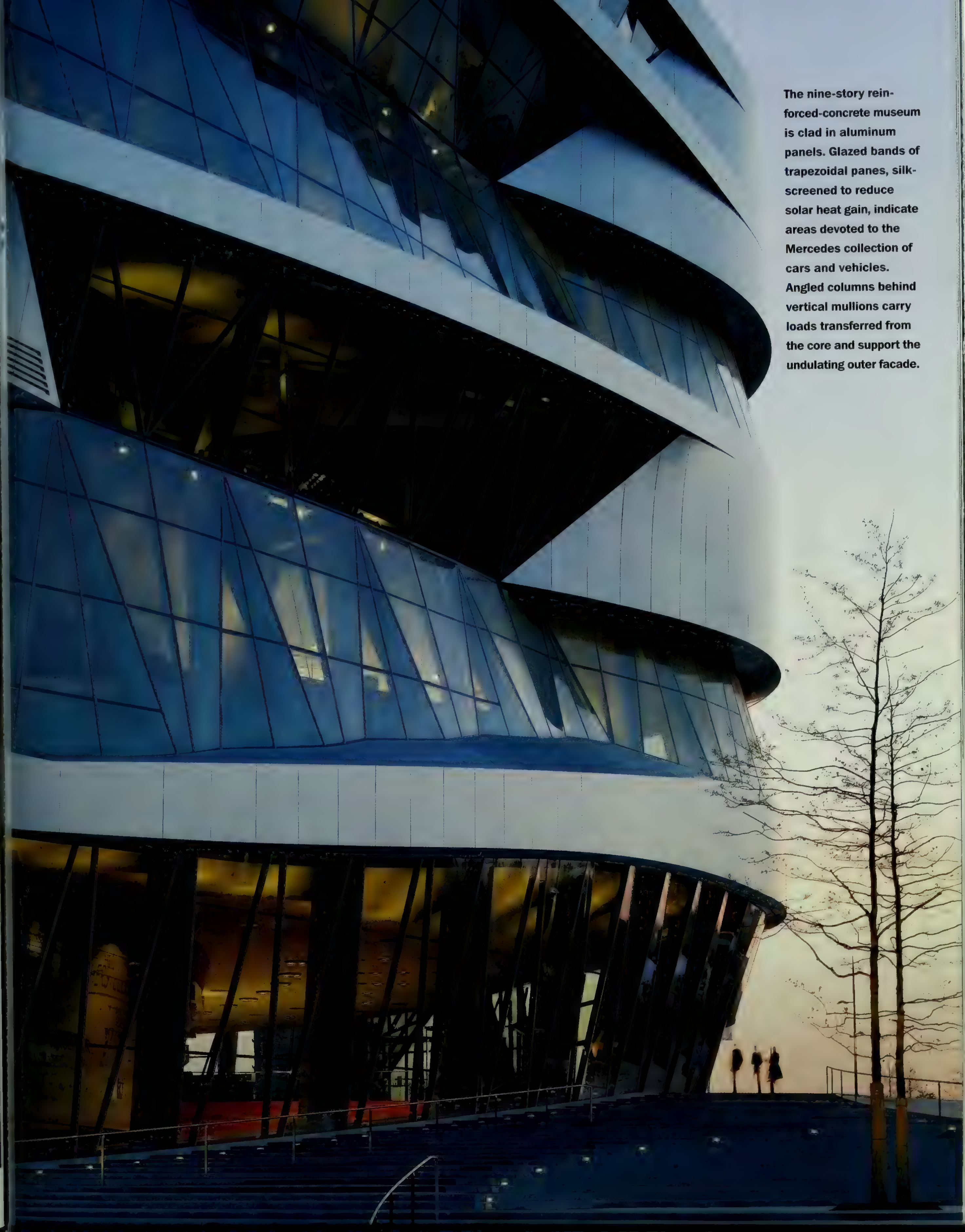
The museum sits on a podium punctuated by an outdoor amphitheater (left). Placed across a major highway from DaimlerCrysler's plant (below), the podium also includes a new car-sales center (rear of photo, bottom).

By Suzanne Stephens

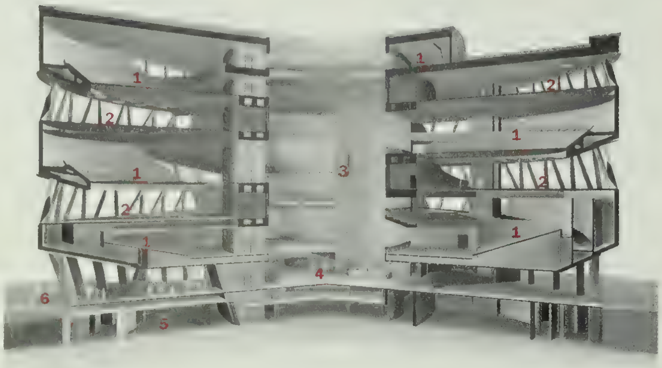
Frank Lloyd Wright probably would have given his porkpie hat to get the commission to design the Mercedes-Benz Museum in Stuttgart—if he had lived so long. And he might have been impressed (even if grudgingly so) to see how a young Dutch firm, UN Studio, evolved a stunning spiral-ramped, reinforced-concrete building for the auto company. Granted, Wright generated his own historic concrete-ramp structure for displaying art with his Solomon R. Guggenheim Museum in Manhattan in 1959. There he realized a spiral-ramp parti he had also developed for cars—in the form of parking structures dating back to 1924–25. But Wright's only chance to adapt that parti for the display of automobiles came with his 1955 Jaguar showroom at 430 Park Avenue in New York City. Now, belonging to Mercedes-Benz, it contains only a smidgen of his original idea.

Going beyond Wright, the nine-story Mercedes museum—designed by Ben van Berkel, an architect, working with his partner, Caroline Bos, trained as an art historian, and their Amsterdam-based office—is composed of two spiraling ramps in the form of a double helix that mimics DNA's genetic strands. With clear spans of 100 feet that can display high-tonnage trucks and cars, the wide ramps loop, incline, merge, and meld as interchangeable surfaces, so that floors become walls, and

Project: *Mercedes-Benz Museum, Stuttgart-Untertürkheim, Germany*
Architect (design): *UN Studio—Ben van Berkel, Caroline Bos, principals*
Architect (production): *UN Studio with Wenzel + Wenzel*
Owner/builder: *DaimlerChrysler Immobilien*
Exhibition design: *HG Merz*
Engineers: *Werner Sobek (structural)*
Consultants: *Arnold Walz (geometry); Arup (infrastructure)*

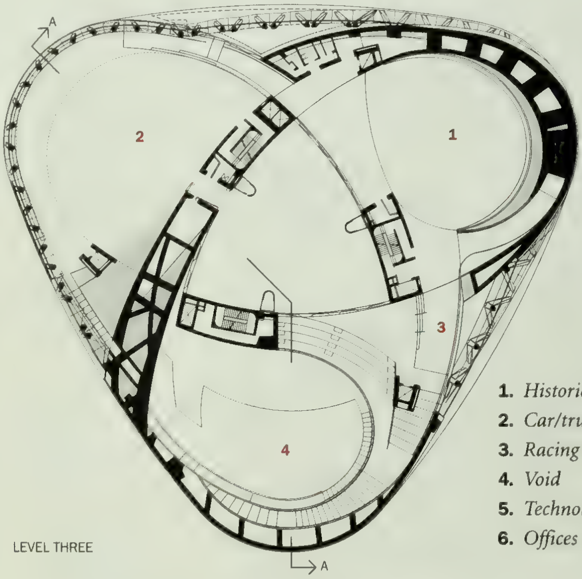


The nine-story reinforced-concrete museum is clad in aluminum panels. Glazed bands of trapezoidal panes, silkscreened to reduce solar heat gain, indicate areas devoted to the Mercedes collection of cars and vehicles. Angled columns behind vertical mullions carry loads transferred from the core and support the undulating outer facade.



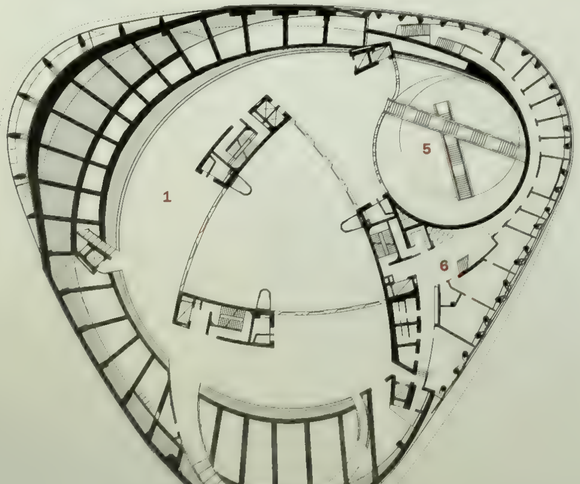
SECTION A-A

1. *Historical displays*
2. *Car/truck collection*
3. *Elevator*
4. *Atrium lobby*
5. *Passage*
6. *Entrance*



1. *Historical displays*
2. *Car/truck collection*
3. *Racing tribune*
4. *Void*
5. *Technology display*
6. *Offices*

LEVEL THREE



LEVEL TWO

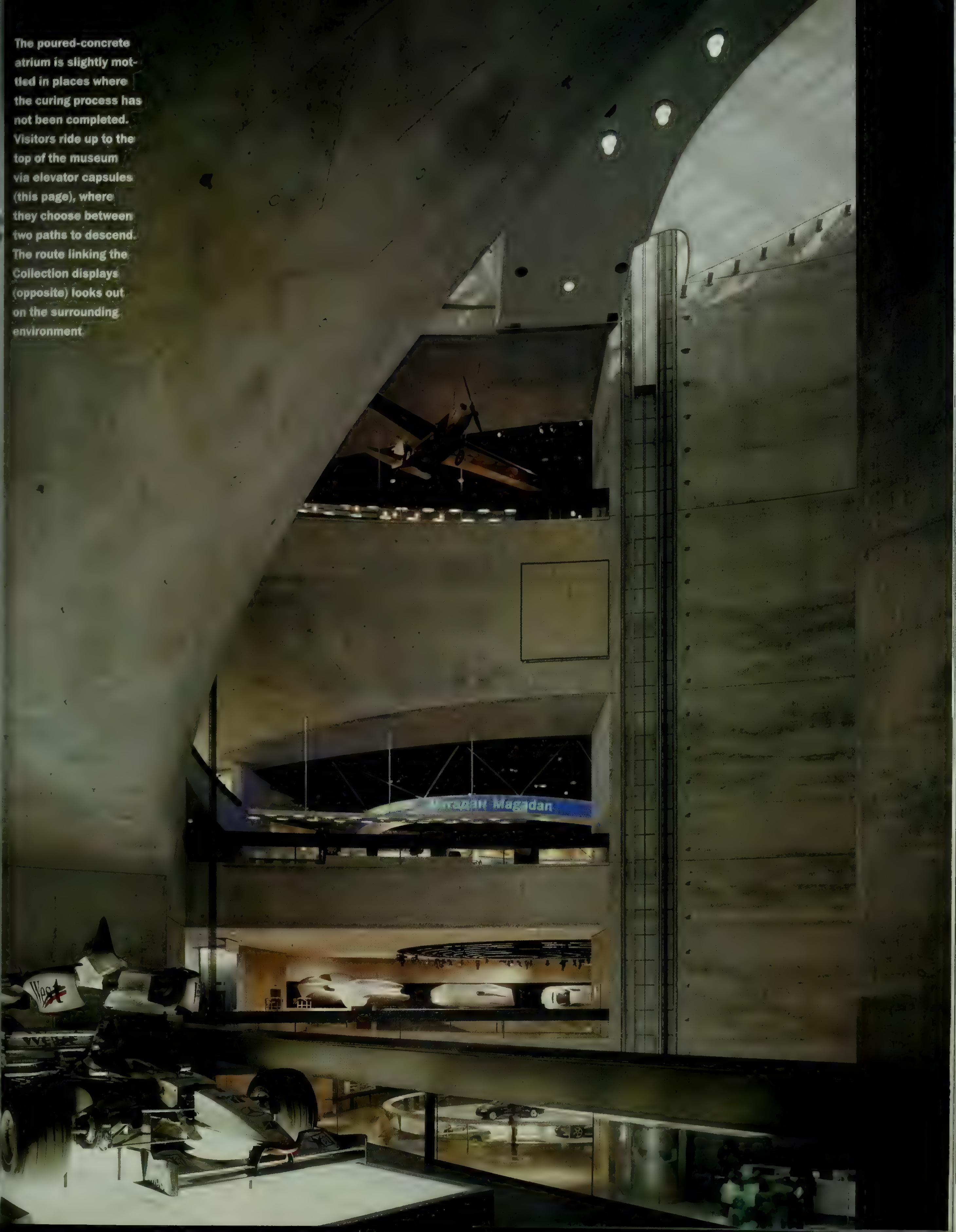
walls become ceilings. In this regard, the museum also demonstrates an affinity to van Berkel's own design for the Möbius House, built in 1998 in Het Gooi, the Netherlands. Although the glass-and-concrete house was angular, not curved, van Berkel bent and folded its planes much like those of the Möbius strip, the famous single-surface topological model. There is more in this architectural gene pool: In addition to developing a design evolving out of the Möbius strip, the double-helix structure, and Wright's museum and parking spirals, we could argue that van Berkel and his team are continuing an important investigation into curved-surface concrete that others besides Wright (e.g., Jorn Utzon, Eero Saarinen, and Pier Luigi Nervi) had pursued so memorably in the mid-20th century.

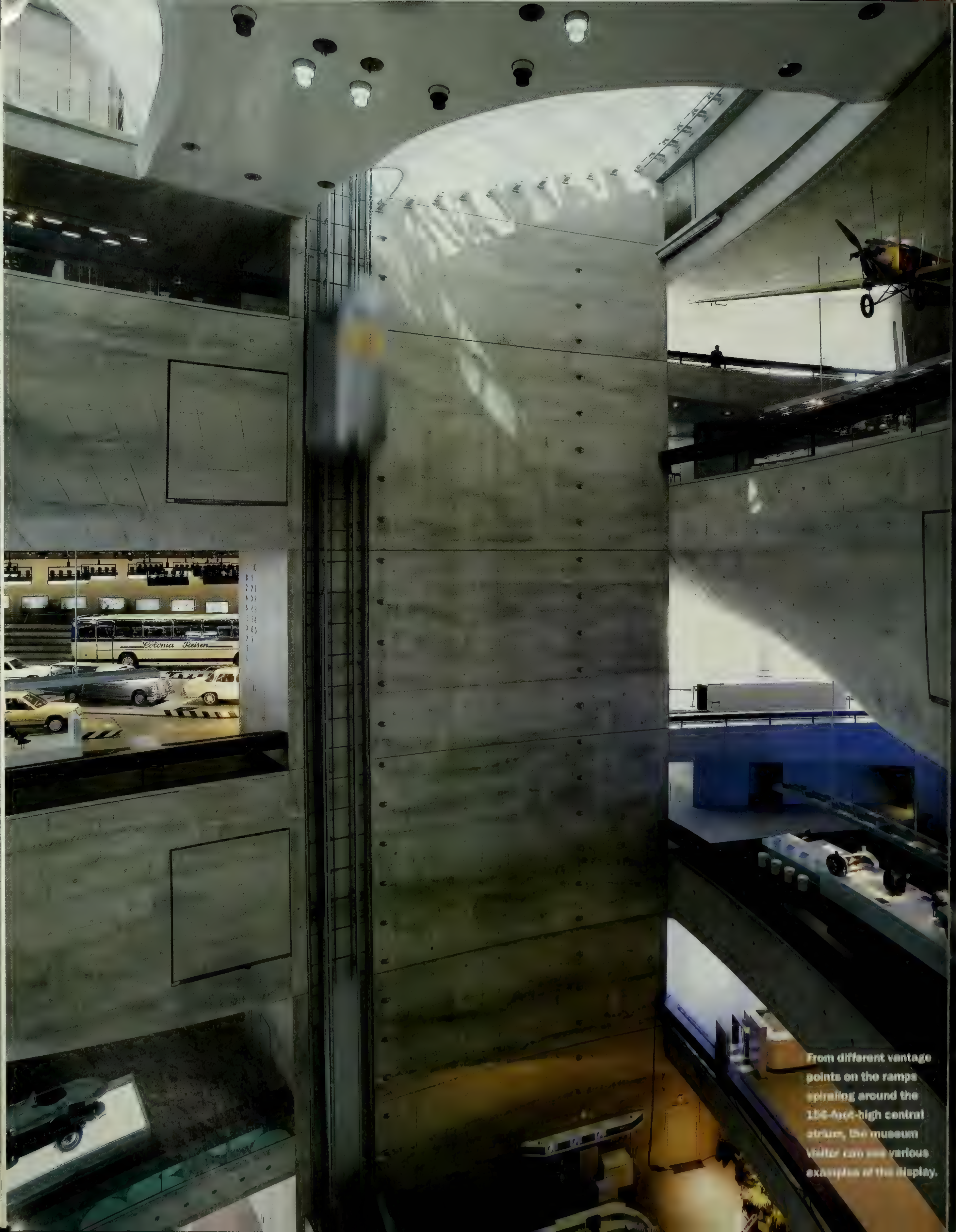
Many technical developments have emerged in the years between Wright's experiments and the competition-winning scheme for the newly opened Mercedes-Benz Museum. These advances enabled the UN Studio team, which included both engineer Werner Sobek and a computer consultant on geometry, Arnold Walz, to develop a 270,000-square-foot, reinforced-concrete structure far more complex than the Guggenheim, and seven times larger. (See page 195 for details.)

In Germany, the Mercedes museum occupies a 37,674-square-foot site in an automotive enclave called Mercedes–Benz World near the parent company DaimlerChrysler's Stuttgart-Untertürkheim plant. Next door is the new Mercedes-Benz Center, a square, three-story building pierced by skylights, where the sleek, elegant cars are sold. A 330-foot-long passage under a concrete podium, lined with shops and a restaurant, links the center to the museum.

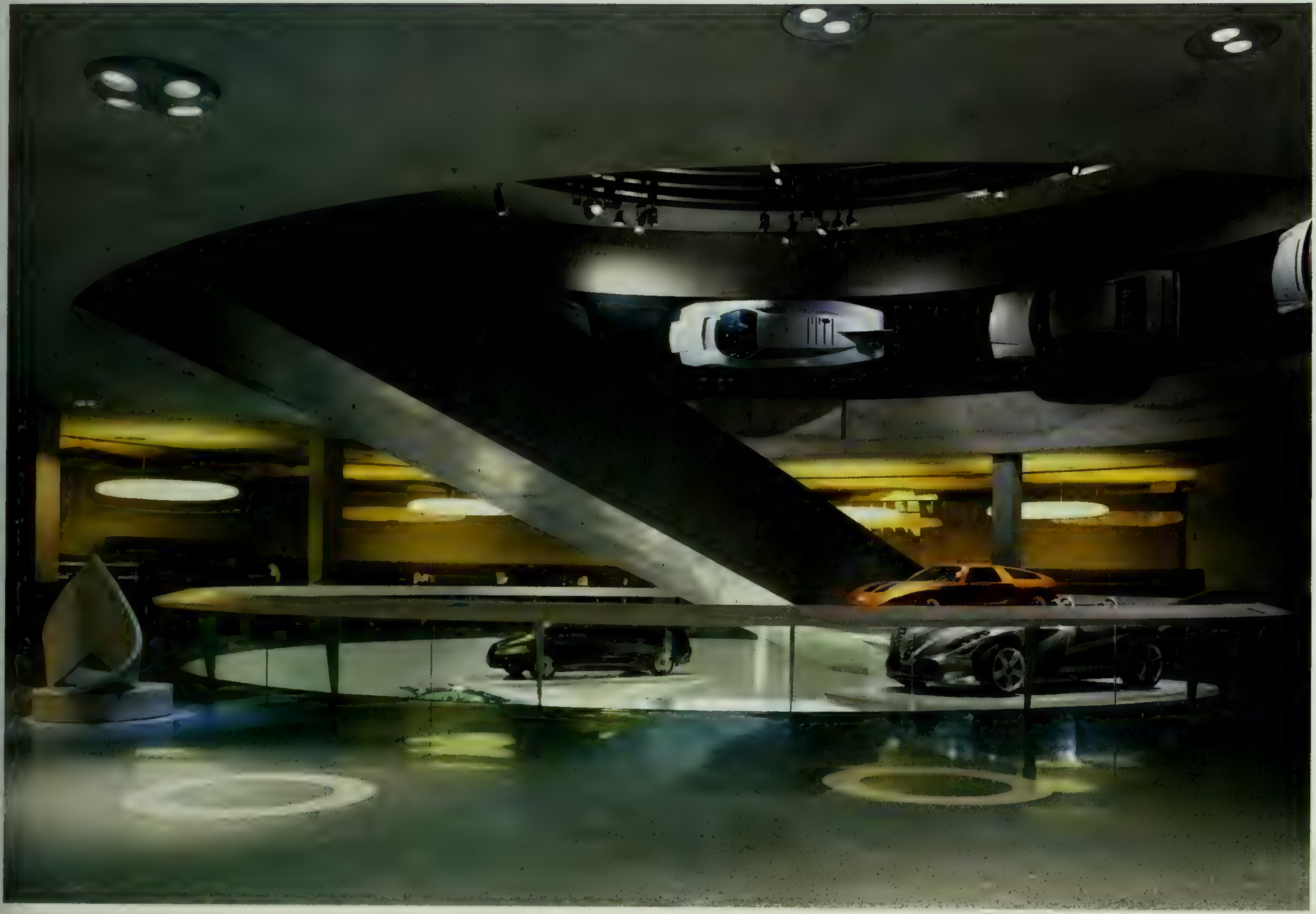
In developing the museum scheme, UN Studio worked with exhibition designer HG Merz, who, with the owner, devised a program

The poured-concrete atrium is slightly mottled in places where the curing process has not been completed. Visitors ride up to the top of the museum via elevator capsules (this page), where they choose between two paths to descend. The route linking the Collection displays (opposite) looks out on the surrounding environment.

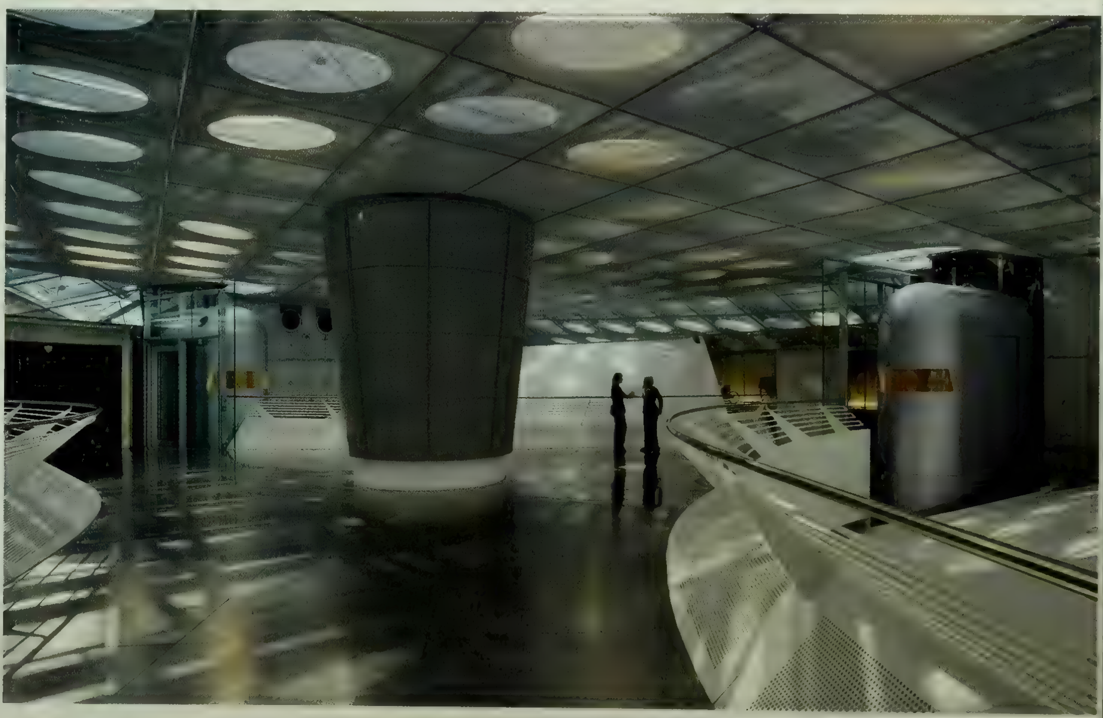


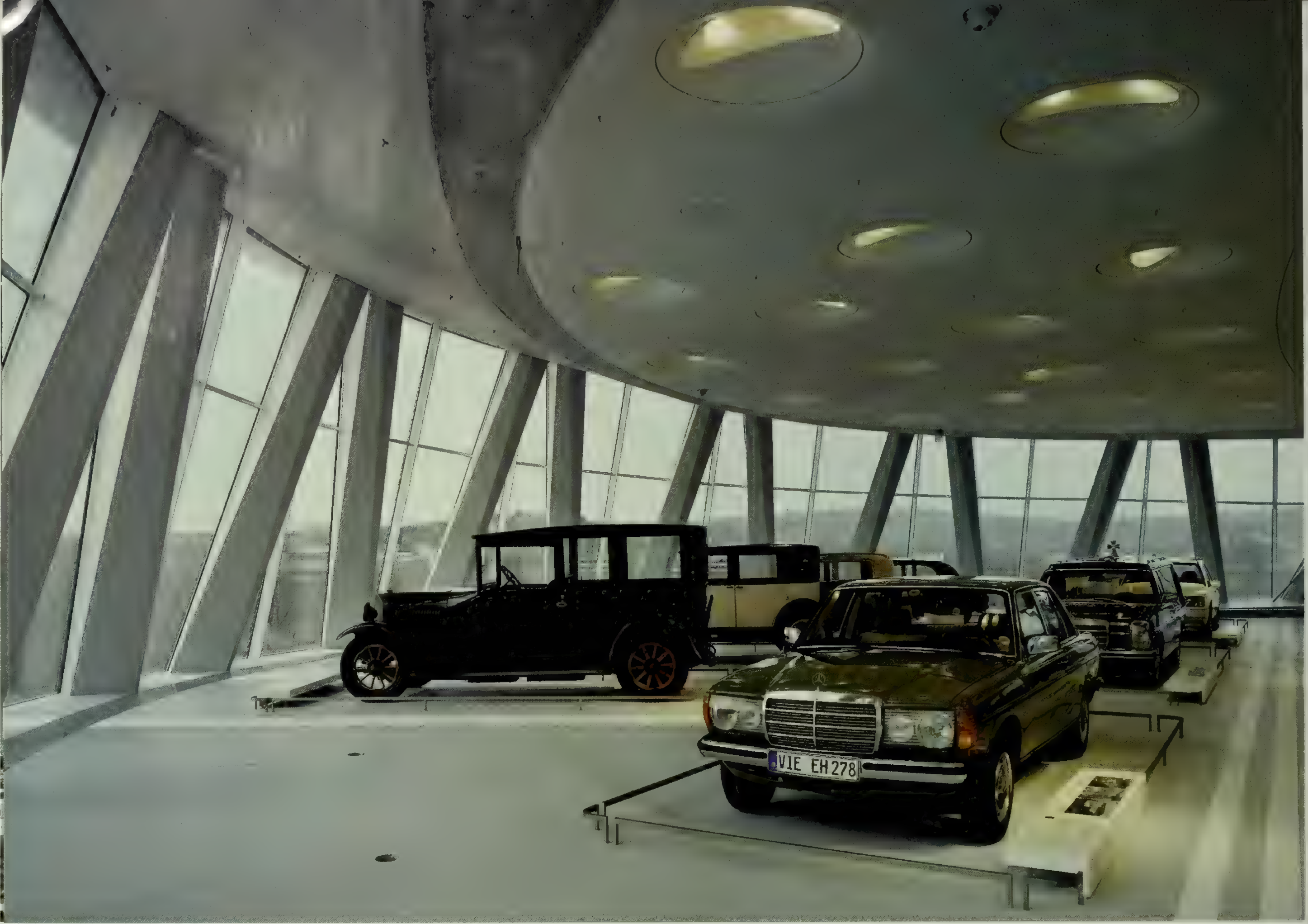


From different vantage points on the ramps spiraling around the 156-foot-high central atrium, the museum visitor can see various examples of the display.



One display, devoted to record-breaking cars, shows them affixed to a vertical wall plane (above), a continuation of a steep bank curve in the adjoining exhibition area. Within this area, experimental cars, positioned on pedestals, can be viewed from the adjacent café. At the top of the atrium (right), a two-layered steel-mesh ceiling under the glass roof gives the space an appropriately futuristic ambience.



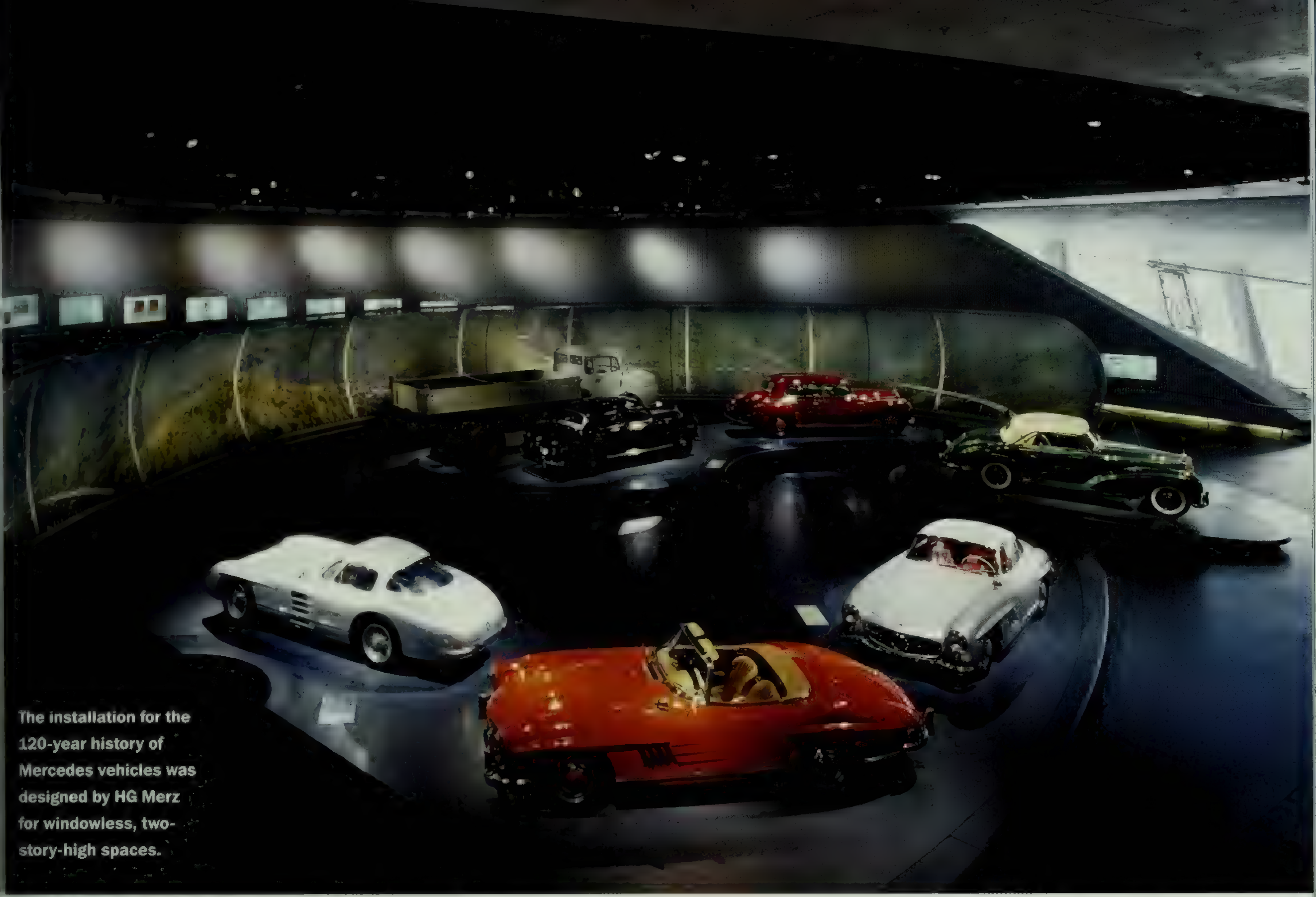


The vehicles in the Collection section of the exhibition can be changed according to curatorial wishes and occupy one-story spaces with views of the outdoors (top). The shops in the passage under the podium were designed by Concrete Architectural Associates.

that organized the museum display according to two distinct themes. The first, dubbed "Legend," comprises the 120-year history of significant Mercedes-Benz designs. The second, "Collection," is a changing display of a range of Mercedes cars and trucks, including the famous "Popemobile," an MB Landaulet, made for Pope Paul VI in 1965.

In order to integrate these two exhibition trajectories, UN Studio wedded the double helix to a trefoil plan formed by three overlapping circles. By carving out the center of the trefoil to create a triangular atrium defined by three concrete shafts, the architects could improve on Wright's circulation solution. Visitors take elevator capsules up the outsides of the shafts to the top (ninth) level, much the way they once did in Wright's Guggenheim Museum in New York, before the new 1992 addition. But now they choose which two paths to follow on a downward slope, instead of Wright's single one. Visitors can change routes along the way, since the Legend, or historical, path frequently intersects with the Collection one. To distinguish the display along the routes, the team designed the history sections to occupy artificially lighted, two-story-high areas, while the one-story-high Collection rooms offer panoramic views of the surrounding environment through curved-glass walls.

As the visitor wanders down on an oblique angle through the museum, he or she will notice that the vantage points for both the exhibited vehicles and the architecture seem to expand and contract. As van Berkel explains, the building is meant to unfold and surprise the museumgoer. The spatial effect could give a grid-addicted visitor a



The installation for the 120-year history of Mercedes vehicles was designed by HG Merz for windowless, two-story-high spaces.

disconcerting feeling ("where am I in this helix?"). But at least you know where you're headed—down to the entrance—even if you're not sure you saw everything.

The structural solution for this aluminum-clad museum was made possible with architectural and engineering advances that Wright and Nervi could only dream about. As Sobek says, "Because of the double curves of reinforced concrete, exposed on both sides, this is one of the most complicated concrete buildings I've worked on." The three vertical concrete shafts in the atrium clearly support the concrete ramps and concrete and steel floor plates. These floor plates are carried by concrete box girders called "twists," which extend to the facade. These hefty twists transfer some of their load to steel tetrapodal (four-legged) columns, which look like inverted V-shaped elements positioned just behind the curved glass perimeter wall.

> **ENGINEER WERNER SOBEK SAYS, "THIS IS ONE OF THE MOST COMPLICATED CONCRETE BUILDINGS I'VE WORKED ON."**

It is not surprising that Mercedes does not advertise the price, which is rumored to be $192 million. Clearly it was worth it to the client, in terms of providing a memorable building-as-logo for the carmaker. (Interestingly, the trefoil plan recalls the age-old tripartite Mercedes Benz hood ornament.) After all, this is a country where car manufacturers believe strongly in marrying car design with architecture in the public mind. Already rival company BMW has erected a building by Zaha Hadid at its plant in Leipzig [RECORD, August 2005, page 82], and its BMW World plans to open a car sales and event center by CoopHimmelb(l)au next year in Munich.

This particular museum assumes a certain significance, not only because of the inventiveness of its structure and design, but because UN Studio has taken earlier architectural experiments to another plateau. Yet it reveals its architectural history without becoming mired in it—challenging Wright's own museum, not copying it. As a museum, however, it succeeds largely because it displays vehicles—hefty, sculptural objects—rather than art against a swirling concrete background. The peculiarity of the type—a museum for high-quality cars—and the financial commitment of the client allowed this advancement in modern architecture to be realized. So, paradoxically, it is somewhat one-off, even as it represents a step in the evolution of the spiral-ramp parti. ■

Sources

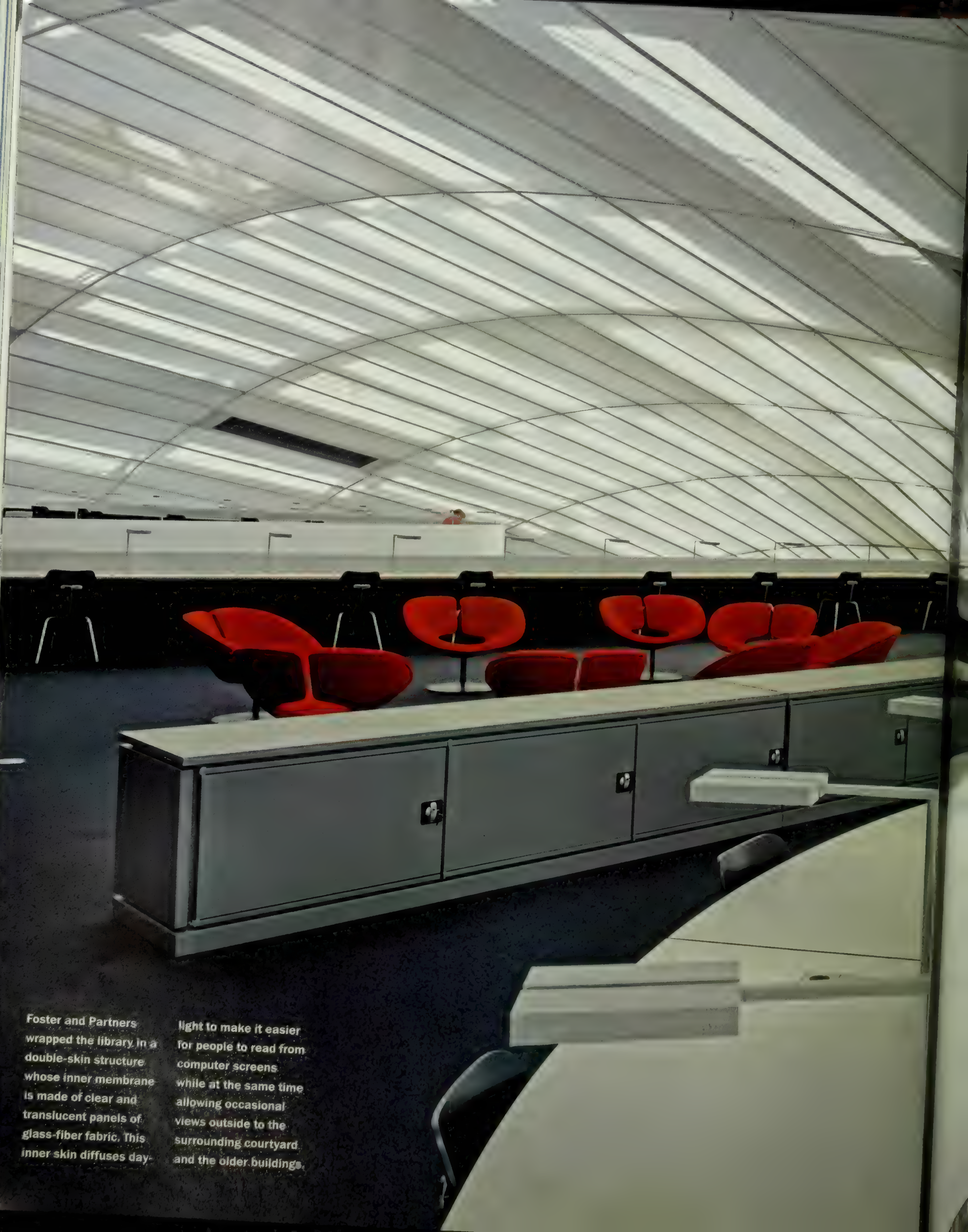
ETFE foil membrane: *Covertex*

Resin-based flooring: *Bolidt (Bolicoat 50)*

Terrazzo floors (shops): *R. Bayer*

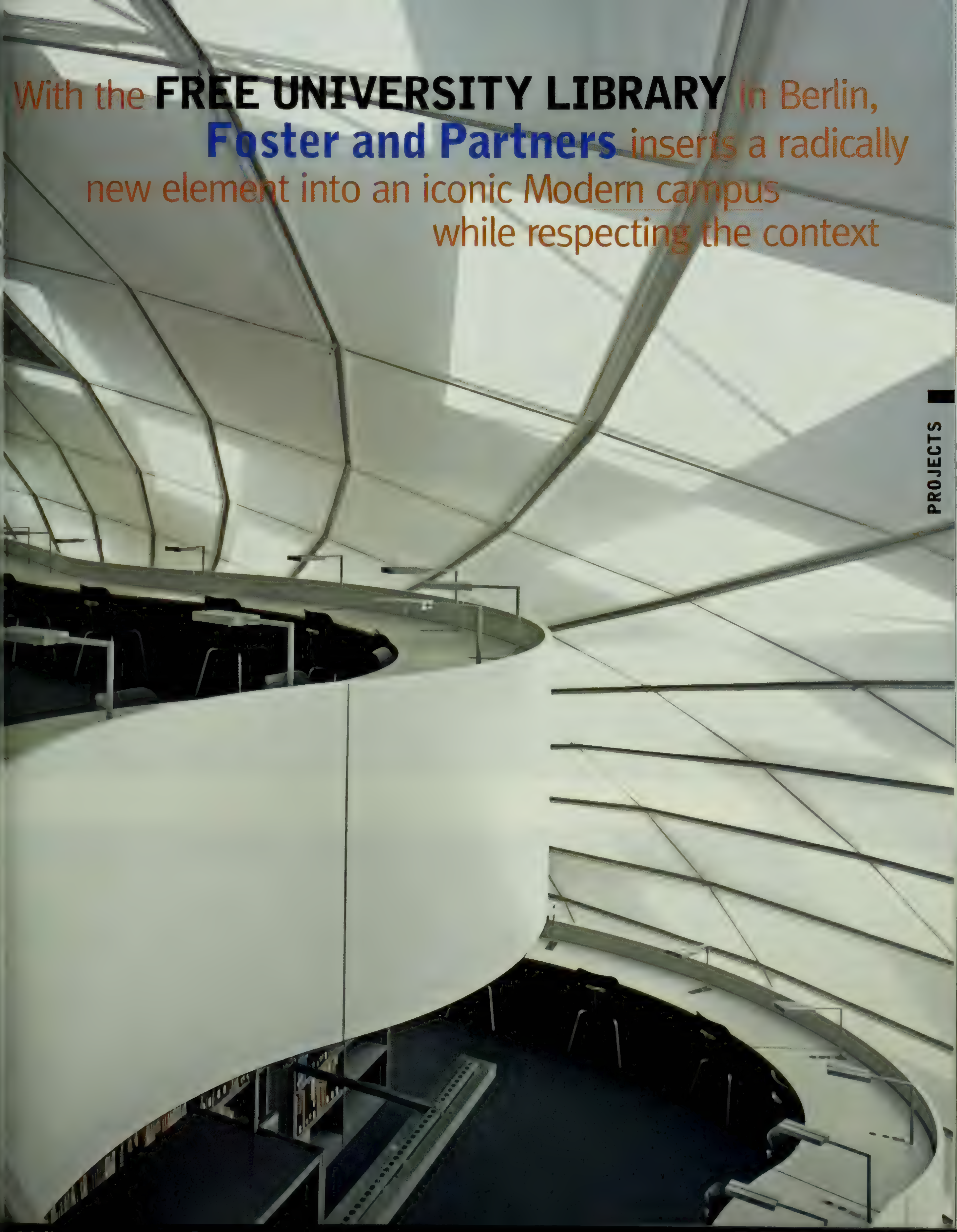
Metal ceiling (shops): *Gema/Armstrong*

For more information on this project, go to Projects at **archrecord.construction.com**.

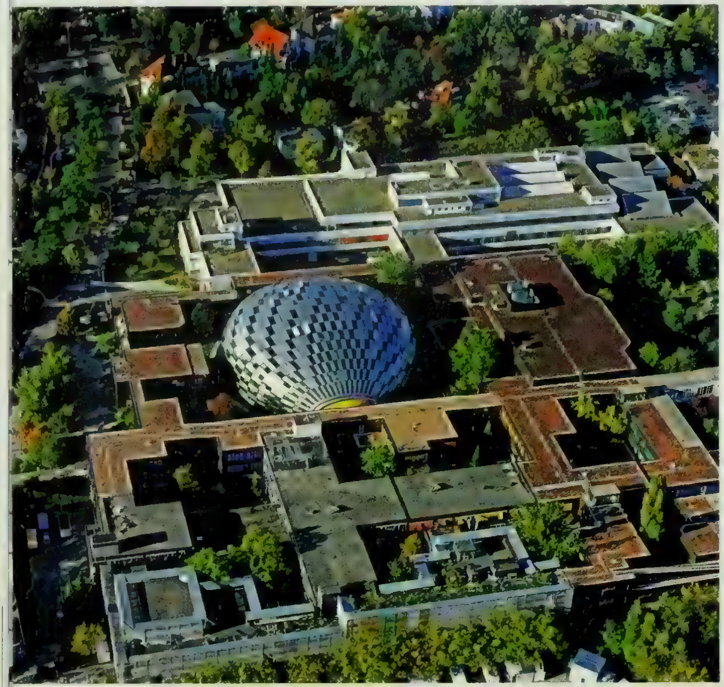


Foster and Partners wrapped the library in a double-skin structure whose inner membrane is made of clear and translucent panels of glass-fiber fabric. This inner skin diffuses daylight to make it easier for people to read from computer screens while at the same time allowing occasional views outside to the surrounding courtyard and the older buildings.

With the **FREE UNIVERSITY LIBRARY** in Berlin, **Foster and Partners** inserts a radically new element into an iconic Modern campus while respecting the context



By Clifford A. Pearson



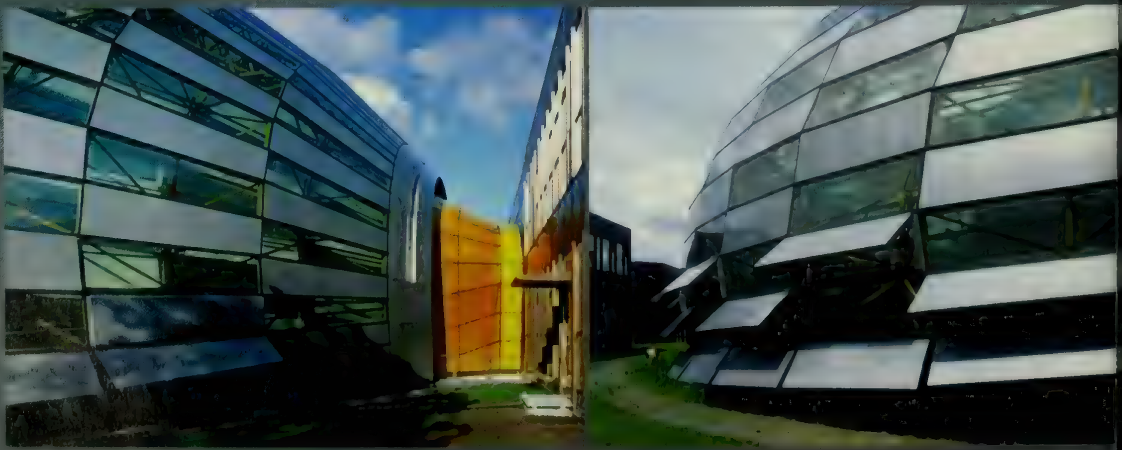
Students at Berlin Free University have nicknamed it "the Brain," an apt reference both to its function and its plan. The intellectual nexus of a dense network of linked buildings, the new library of the faculty of philology indeed looks like a cranium when viewed from above. More important, it's a smart building that employs a range of green design strategies and state-of-the-art digital technologies for connecting people with information.

Designed by Foster and Partners, the library is the most prominent element in the firm's renovation of the Free University campus, a seminal work by the firm Candilis, Josic, Woods, Schiedhelm that embodied many of the ideas of the group of architects known as Team 10. Beginning 1956, this group brought together designers and polemicists, such as Georges Candilis, Shadrach Woods, and Peter and Alison Smithson, who wanted to reform the Congrès Internationaux d'Architecture Moderne. Candilis, Josic, Woods, Schiedhelm, which started designing Free University in 1963 and saw the project's first phase completed in 1973, dismissed as old-fashioned the notion of assembling the campus as a series of object buildings. Instead, it envisioned its design—a sprawling grid of courtyards and connector buildings—as a system of urbanism that would expand and change as needed. Such a system would provide flexible growth, allowing entire blocks of the campus to be dismantled and put up somewhere else. The buildings' innovative cladding panels, made of Cor-Ten steel, were designed by Jean Prouvé, who used Le Corbusier's Modulor system to devise their proportions. Unfortunately, the Cor-Ten rusted through the thin panels, compromising their performance.

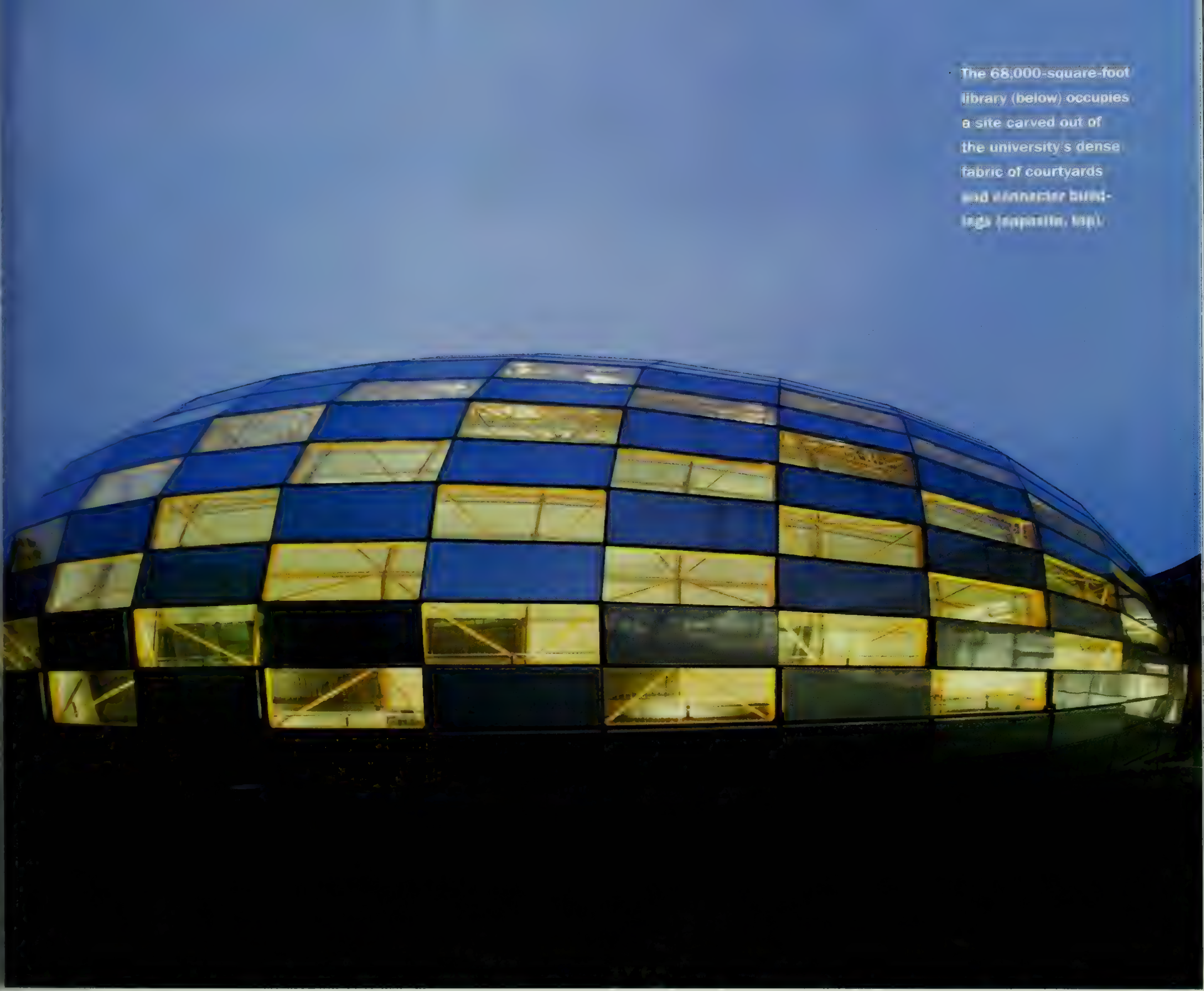
With the library, the challenge for Foster was to somehow insert a 68,000-square-foot building within Candilis, Josic, Woods, Schiedhelm's dense campus fabric without overwhelming it. "We asked ourselves, 'What is the most compact form for enclosing the space?' " recalls David Nelson,

---

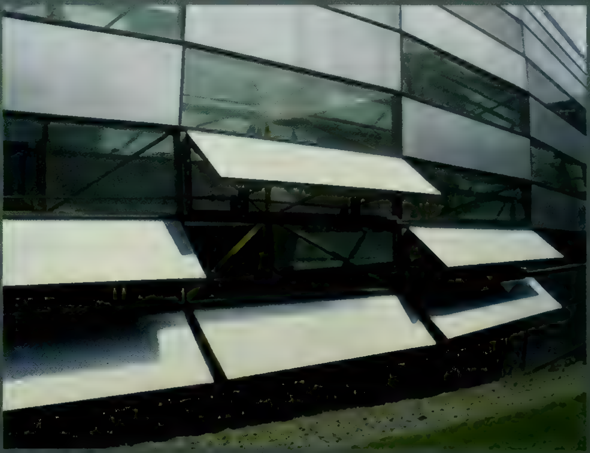
Project: *Free University Library, Berlin*
Architect: *Foster and Partners—Norman Foster, David Nelson, Stefan Behling, Christian Hallmann, Ulrich Hamann, Ingo Pott, project team*
Engineers: *Pichler Ingenieure (structural); Schmidt Reuter Partner, PIN Ingenieure (mechanical, electrical); IFFT Karlotto Schott (facade)*
Consultants: *Kappes Scholtz (planning, library); Büro Langkau Arnsberg (building physicist)*
General contractors: *MERO-TSK (shell); Glass Ingenieurbau Leipzig (core)*



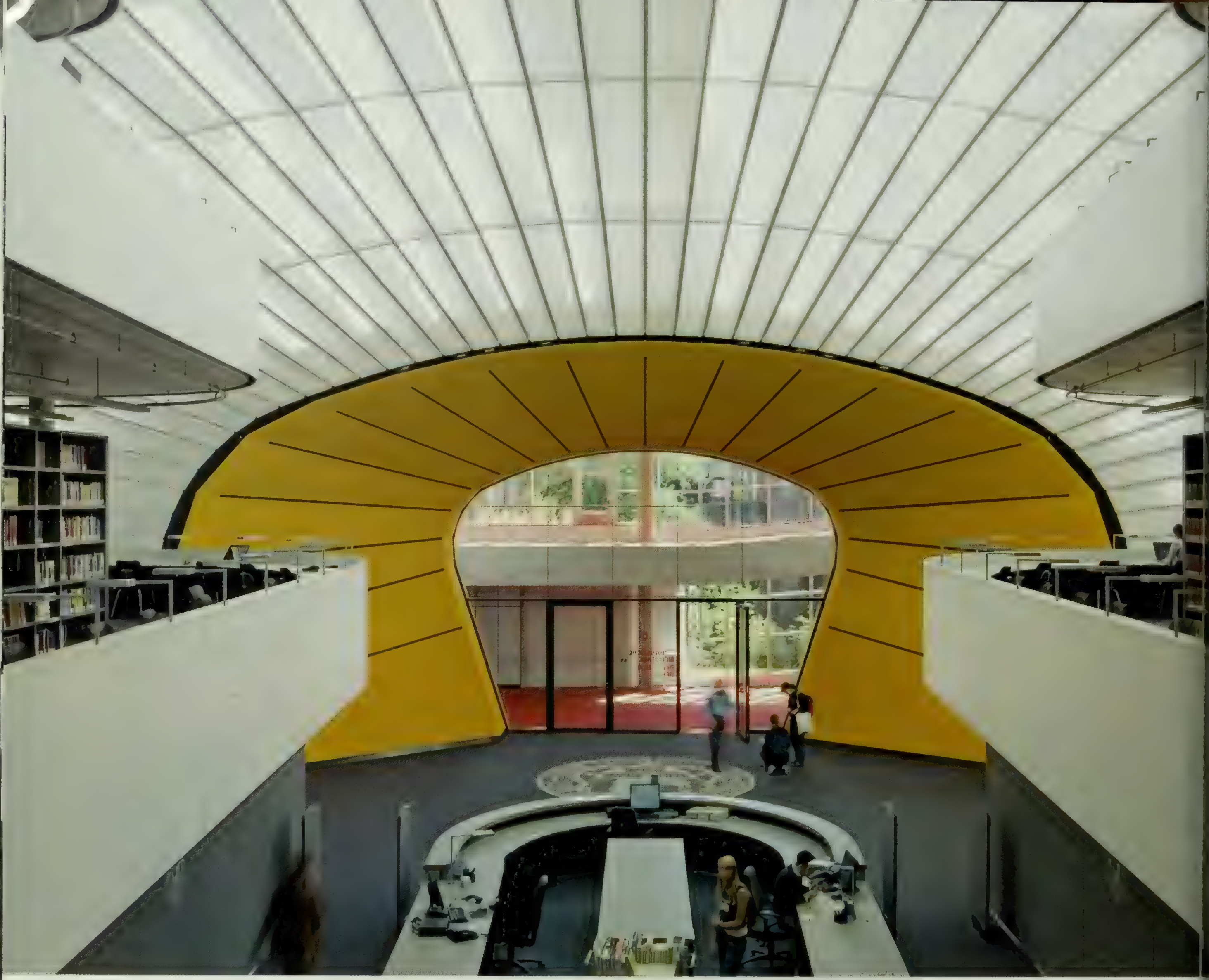
The building's two skins are wrapped around a steel-frame structure that the architects painted yellow to highlight the space between the twin layers and to allude to the bold primary colors used in the interior finishes of the existing university. Completed in September 2005, the library cost $23.6 million to build.



The 68,000-square-foot library (below) occupies a site carved out of the university's dense fabric of courtyards and connector buildings (opposite, top).

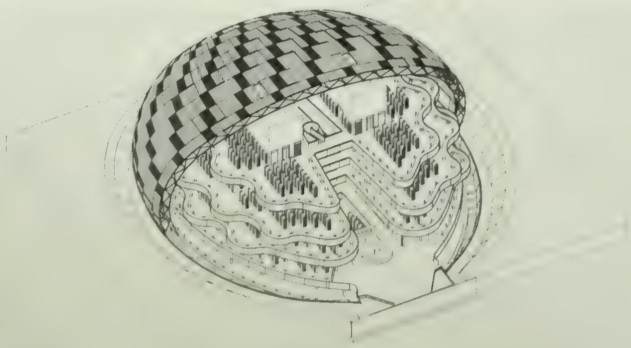


Transparent glass panels on the outer skin were arranged so they track the movement of the sun, while aluminum panels can open to allow the building to "breathe." The double-skin design enables the building to rely on natural ventilation for 60 percent of the year and reduces energy consumption by 35 percent.



the senior partner in charge of the project for Foster. Pursuing such a strategy, the architects developed a curving building envelope oval in plan an blimplike in its long elevation. To make room for the new building, whic houses 700,000 books and consolidates 11 departmental libraries that ha been scattered throughout the campus, the architects combined six courtyards by taking down the buildings separating them.

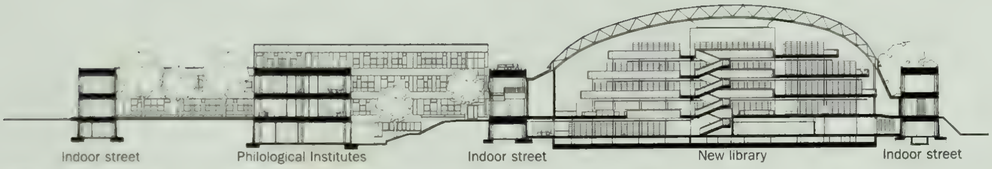
Nelson says his team never thought of the library as a brain, metaphor that students came up with only after the building opened i 2005. Instead of cerebral imagery, the architects explored ways to make th interior space as conducive to learning as possible. "We felt that daylight wa what the students would want," explains Nelson. "Giving them natural ligh and views to the courtyard, we could help the students feel connected to th university and the outdoors." But too much daylight would damage book and create glare for people staring at computer screens. So the architect investigated translucent wrappings for the library space that would sprea diffused light everywhere. In the end, they devised a double skin with a outer shell of aluminum and glazed panels and an inner membrane mad of translucent and clear glass-fiber fabric. The transparent glazed panels o the outer layer follow the course of the sun, while the aluminum pane open and close to allow the building to breathe. Alluding to the origin



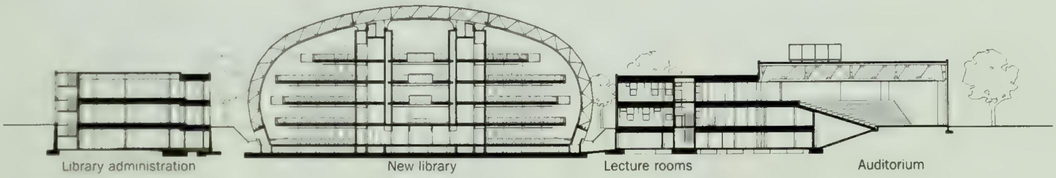
ISOMETRIC VIEW

The library is connected to the rest of the university at two ends by bright yellow arches (top), but only one is in use now.

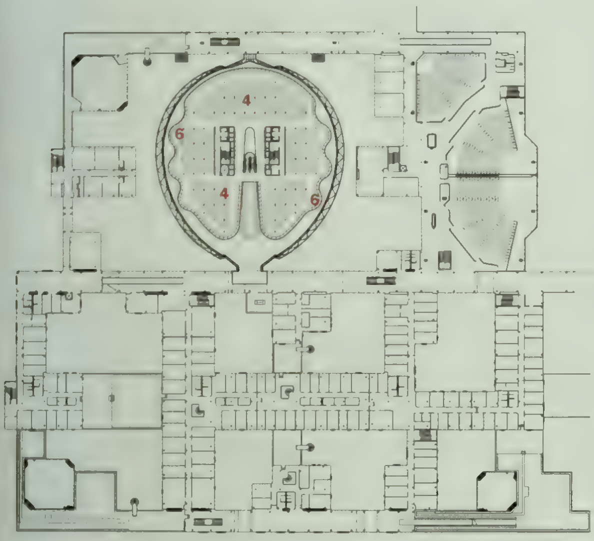
1. *Philological Institutes (existing)*
2. *Circulation desk*
3. *Meeting*
4. *Book stacks*
5. *Library administration*
6. *Reading counter*



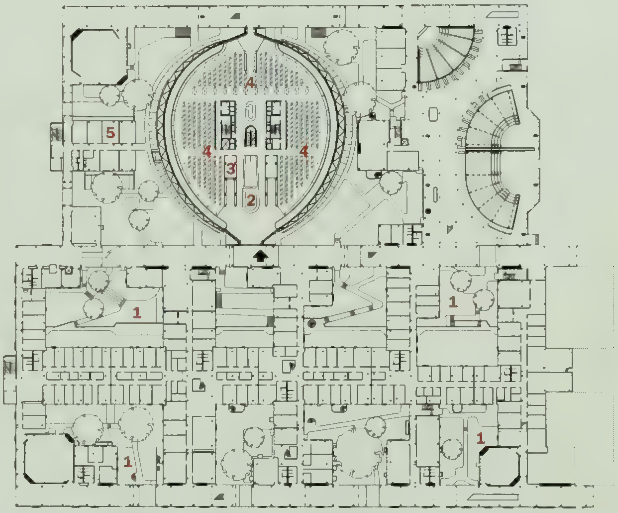
NORTH-SOUTH SECTION



EAST-WEST SECTION



LEVEL TWO



LEVEL ONE

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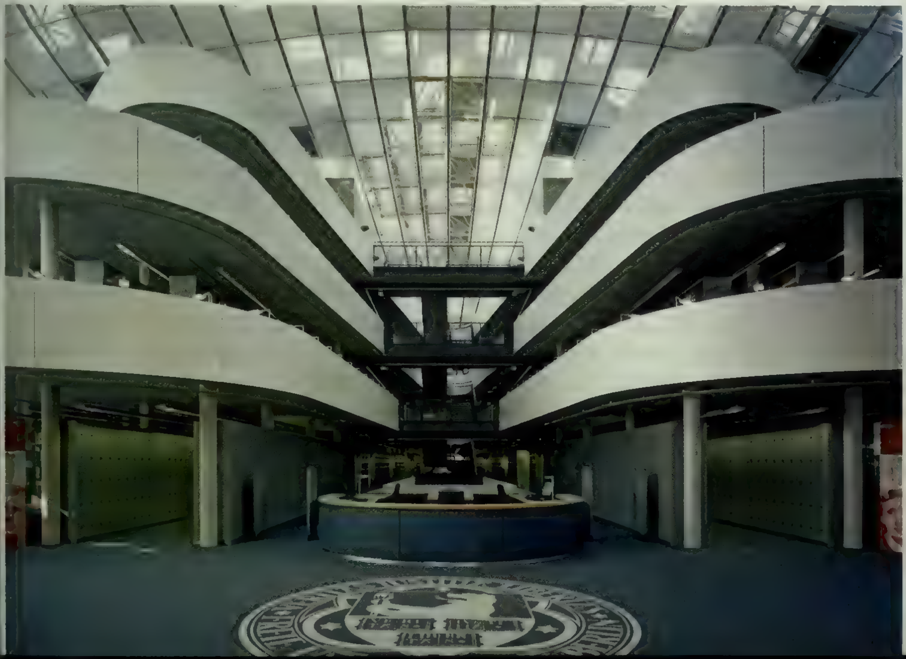
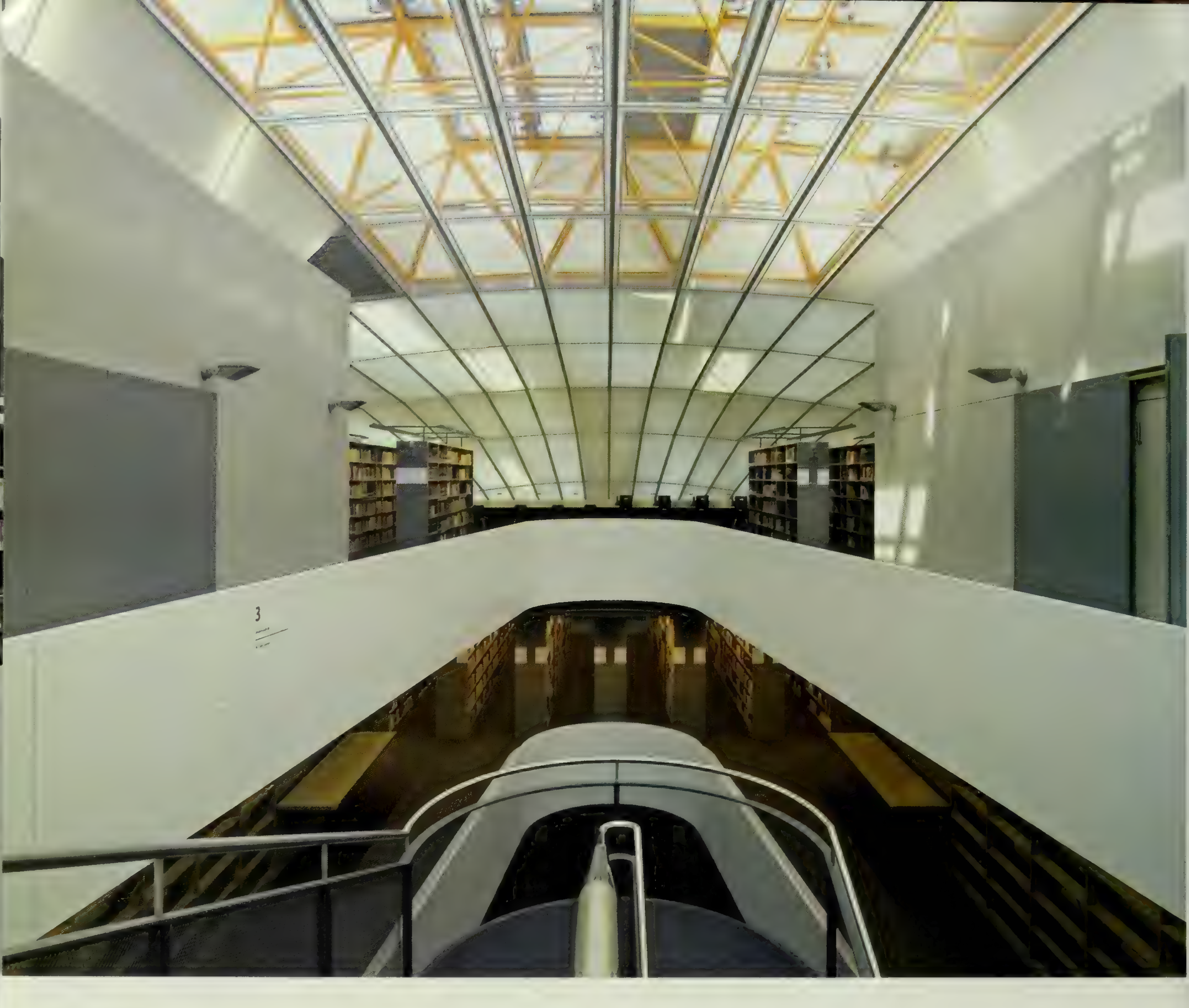


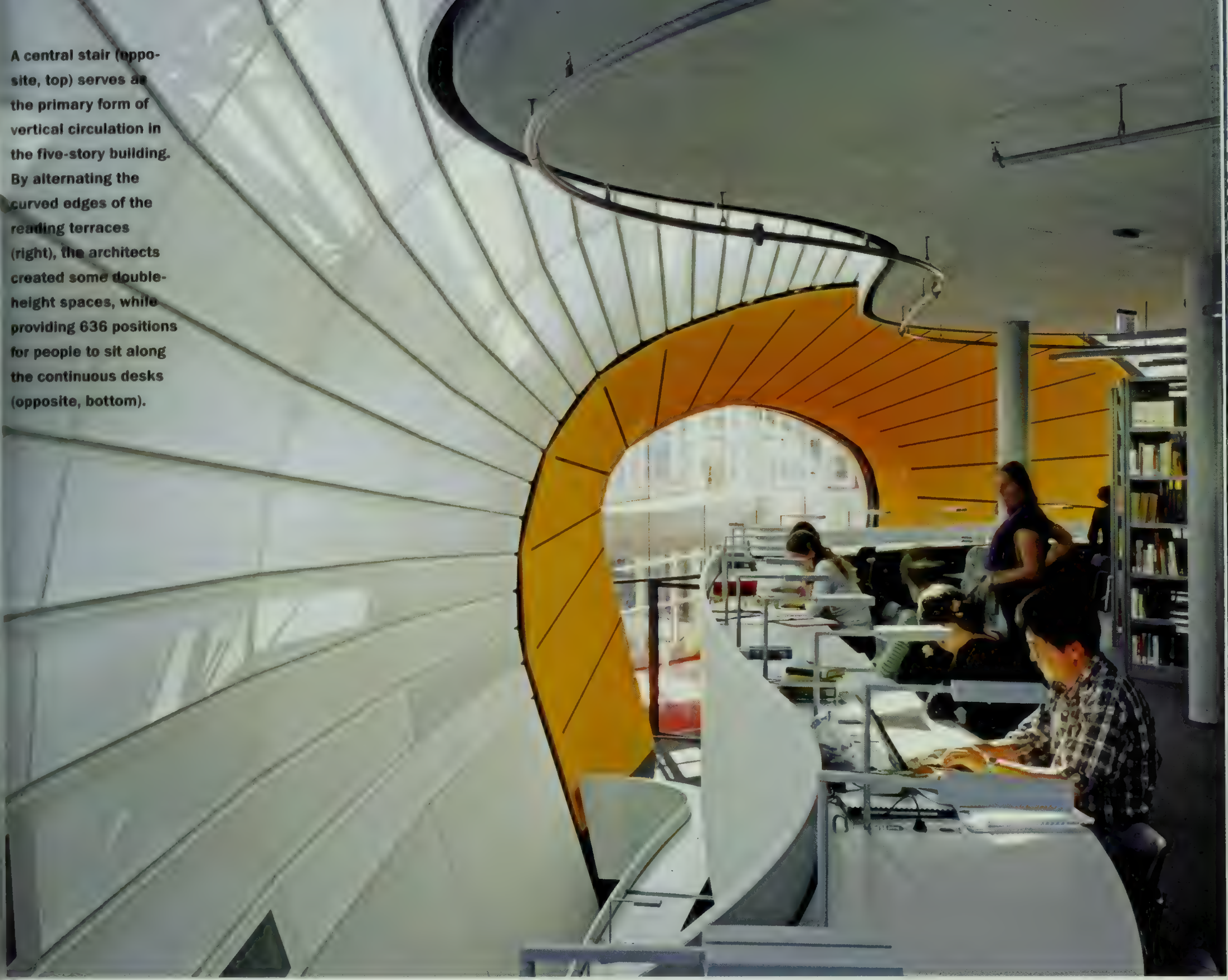
Inside the library, the twin concrete cores and floors (left) act as passive thermal-storage units to reduce swings in temperature. Pipes in the floors deliver warm or cold water, depending on the season, to further condition internal air, which passes through an undercroft, then circulates throughout the building.



buildings' use of bold colors, Nelson painted the roof's radial steel members bright yellow, which also helps express the structure and highlights the gap between the building's two skins.

Underneath the light-infused dome, the architects designed a heavy, concrete structure for the floor slabs and twin circulation cores. While the dome's double skin serves as a thermal buffer and breathes, the concrete structure below moderates swings in temperature thanks to pipes embedded in it that carry hot water in winter and chilled water in summer. The building also draws fresh and recycled air through an undercroft where it is warmed or cooled depending on the need. According to the architects, the library can be kept comfortable entirely by natural ventilation for 60 percent of the year and uses only sunlight during most daytime hours. As a result, the building consumes 35 percent less energy than a comparable building, states Nelson.

To reduce its profile against its neighbors, which rise just two stories above ground, Nelson and his team limited the library's height to 63 feet, keeping the floor-to-ceiling heights to just 10 feet and putting book stacks in the center, where the structure is tallest. By placing books in the center of each floor, away from daylight, the architects were able to put



A central stair (opposite, top) serves as the primary form of vertical circulation in the five-story building. By alternating the curved edges of the reading terraces (right), the architects created some double-height spaces, while providing 636 positions for people to sit along the continuous desks (opposite, bottom).

people around the perimeter, closer to views outside. And by scalloping the edge of each floor so that concave and convex bays alternate at each level, they increased the number of reading stations and opened up double-height spaces for people seated on the terraces. The library also employs a sophisticated network of digital technologies that allows students to copy pages from books at scanners around the building and print them or e-mail them to their own computers.

As for Foster's work renovating existing parts of the university, the firm reskinned the buildings with bronze panels that maintain the Modular system used in the originals and that will deepen in color as they age so they will resemble the old Cor-Ten. "Our intent was to restore the spirit of the original while bringing it up to today's standards," states Nelson. The firm also replaced extensive amounts of asbestos, adjusted interior layouts within the philological institutes to reflect the current faculty structure, refurbished existing light fixtures, and replaced old carpeting with duplicates made by the original manufacturer. Nelson's team reused some of the structural elements from parts of the building taken down, fulfilling the original architects' intention of creating a building system flexible enough to accommodate change over time.

By inserting a round building within an emphatically rectilinear, matlike context, Foster and Partners risked sticking out like a "carbuncle on the face of a much-loved and elegant friend" (as Prince Charles once said of a different project). But the library comes across as one of those wonderful surprises you might find just beyond a lively piazza in some Tuscan hill town. On the outside, it helps animate the enlarged courtyard around it, while many of the older courtyards remain dreary affairs. Inside, it turns out to be both a comfortable and engaging place to study—its bilateral symmetry and steady, diffuse light pleasing to the left side of our brains, and its curvaceous plan exciting to the right side. ■

Sources

Aluminum-skin panels: *MERO*

Glass-fiber membrane: *Clauss Markisen Projekt*

Carpeting: *Anker-Teppichboden*

Desk light: *Kotzolt-Leuchten (Stretchlite)*

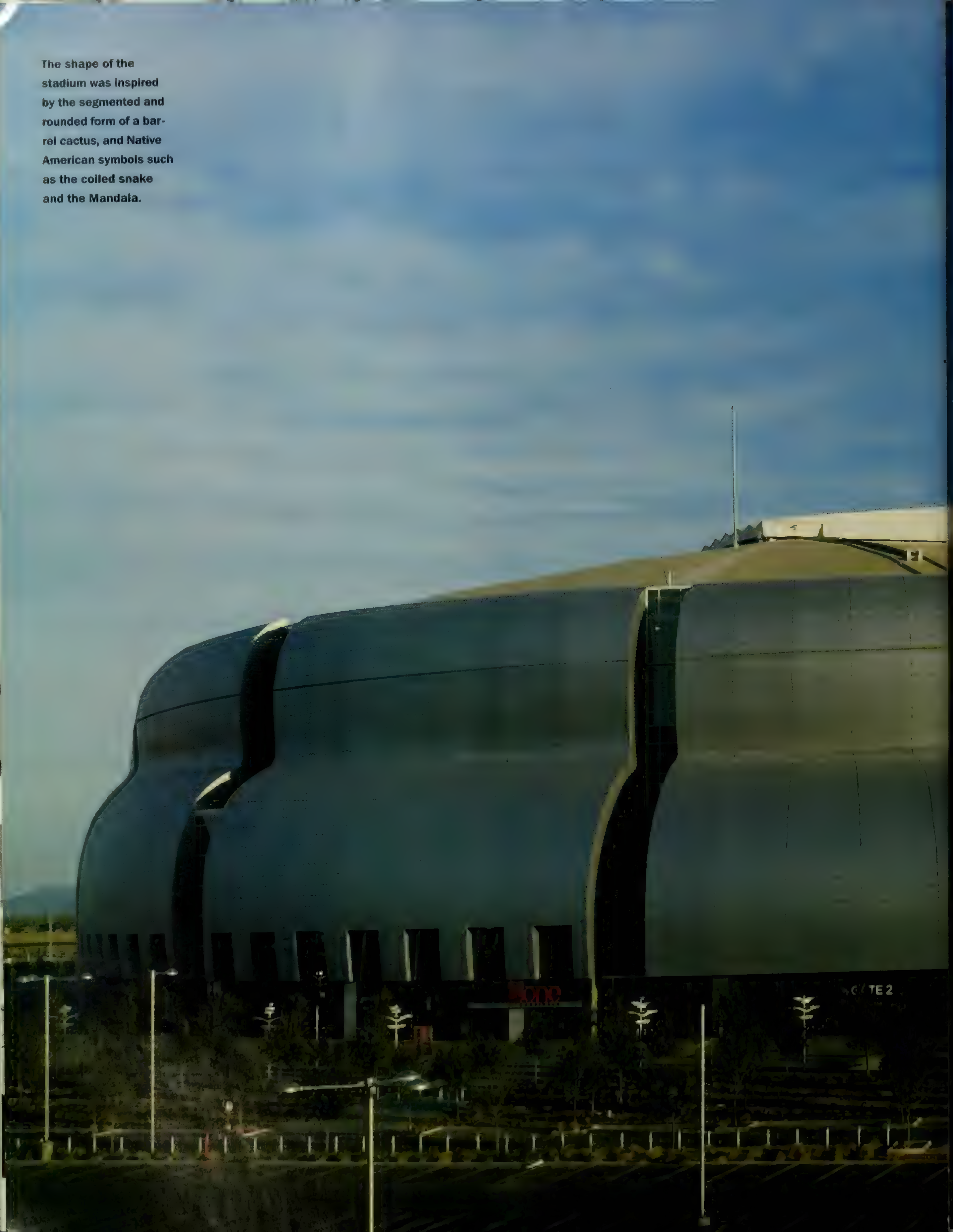
Wall washers: *ERCO Leuchten*

Lounge chairs: *Patrick Norguent for Minimum Einrichten*

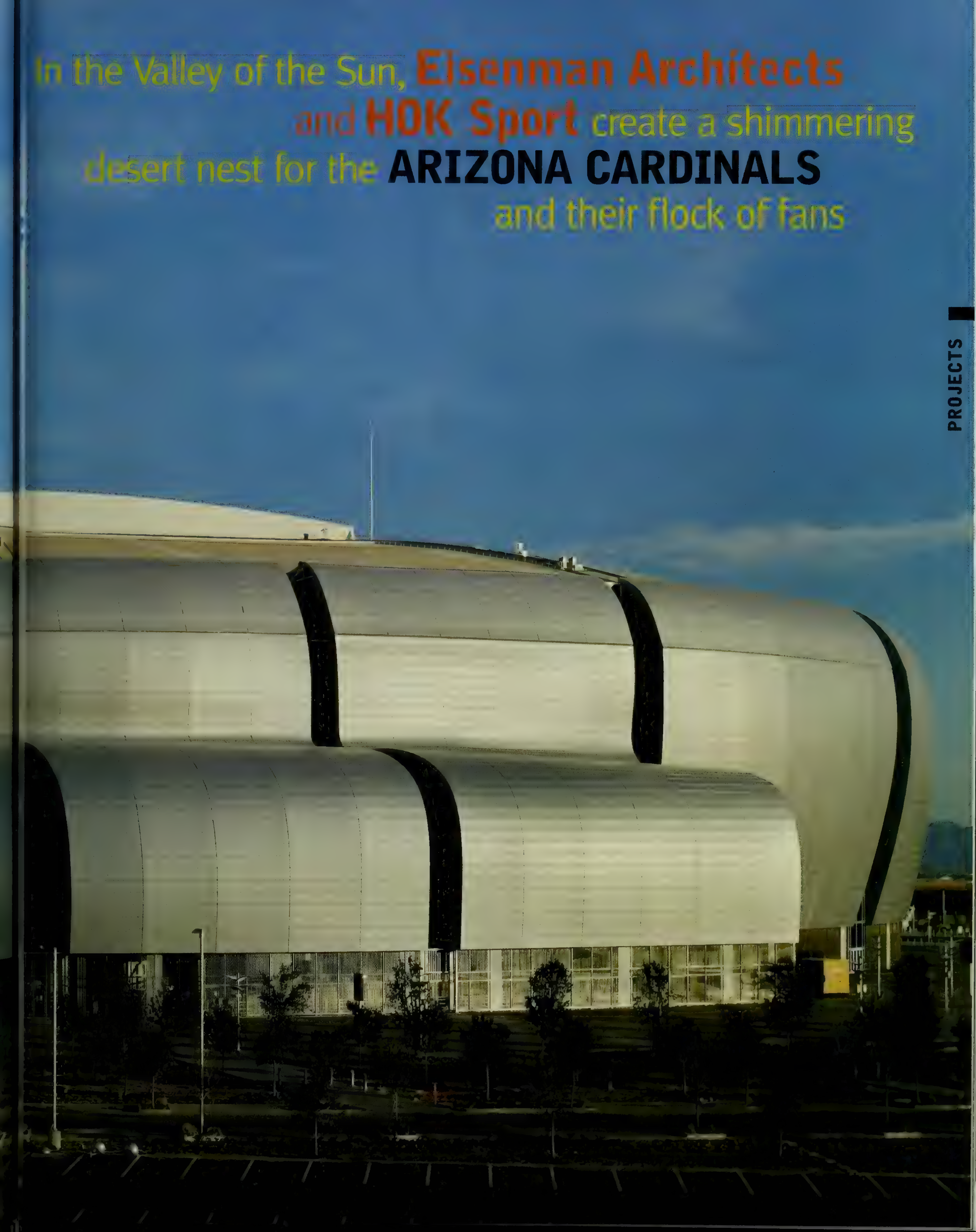
Desk chairs: *Egon Eiermann for Wilde+Spieth*

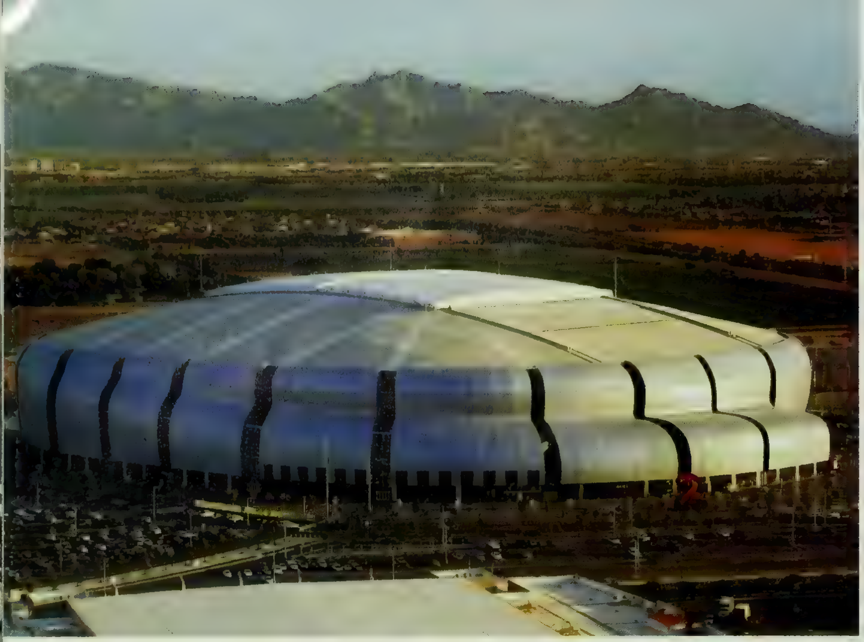
For more information on this project, go to Projects at **archrecord.construction.com**.

The shape of the stadium was inspired by the segmented and rounded form of a barrel cactus, and Native American symbols such as the coiled snake and the Mandala.

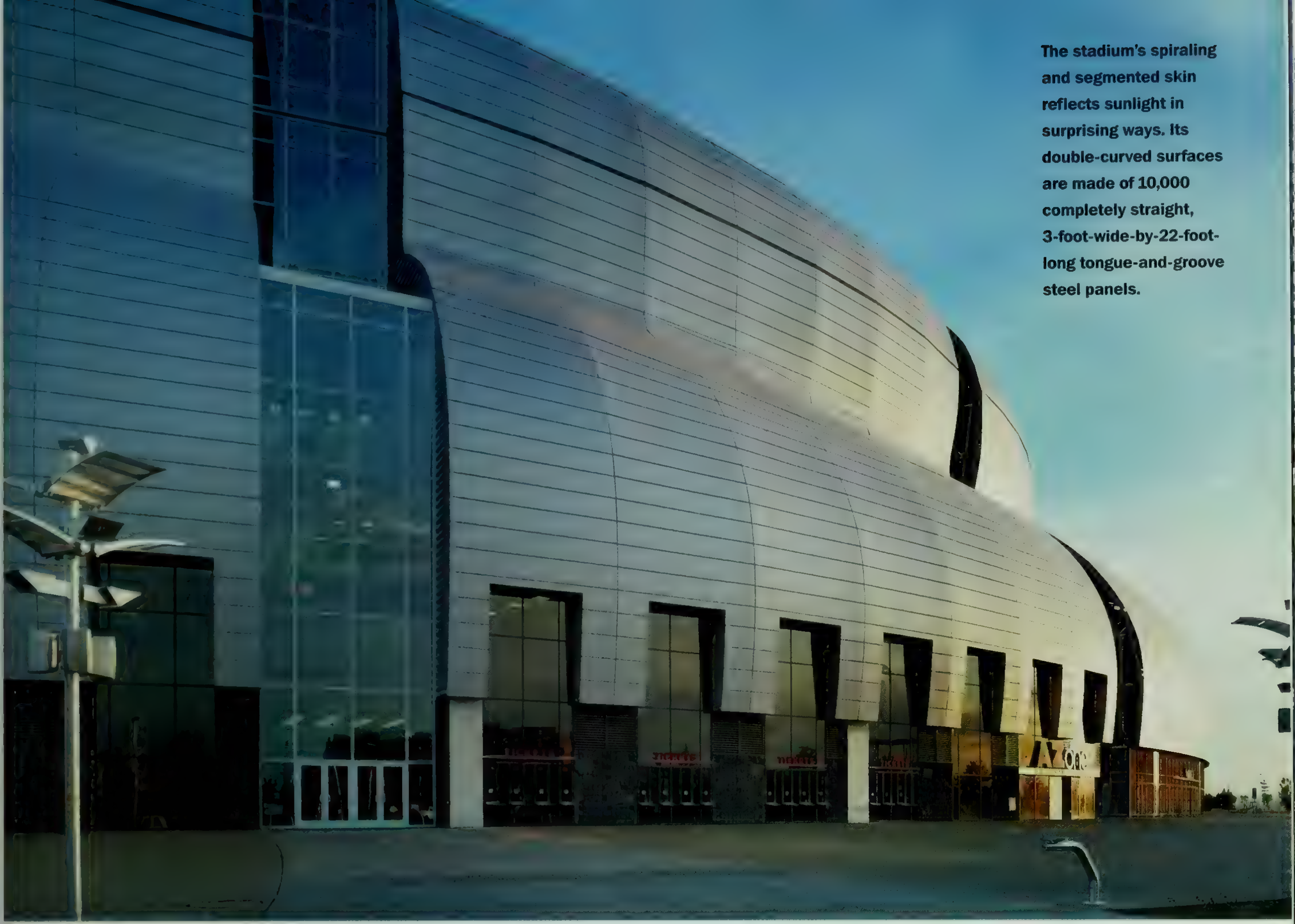


In the Valley of the Sun, **Eisenman Architects** and **HOK Sport** create a shimmering desert nest for the **ARIZONA CARDINALS** and their flock of fans





The stadium is chameleonlike, taking on different characters at different times of day. At dusk, it seems to glow from within (below). Developers are building housing, retail complexes, and sports venues on the still largely agricultural land surrounding the building (above two).



The stadium's spiraling and segmented skin reflects sunlight in surprising ways. Its double-curved surfaces are made of 10,000 completely straight, 3-foot-wide-by-22-foot-long tongue-and-groove steel panels.

By Joann Gonchar, AIA

In the otherwise parched landscape of the so-called Valley of the Sun, the shimmering new stadium for the National Football League's Arizona Cardinals rises from the incongruously lush farmlands immediately surrounding it like a strange but pleasing apparition. Chameleonlike, the building's double-curved steel cladding reflects light differently throughout the day. At night, the stadium seems to phosphoresce, glowing from within through its 21 glazed slots, or "canyons."

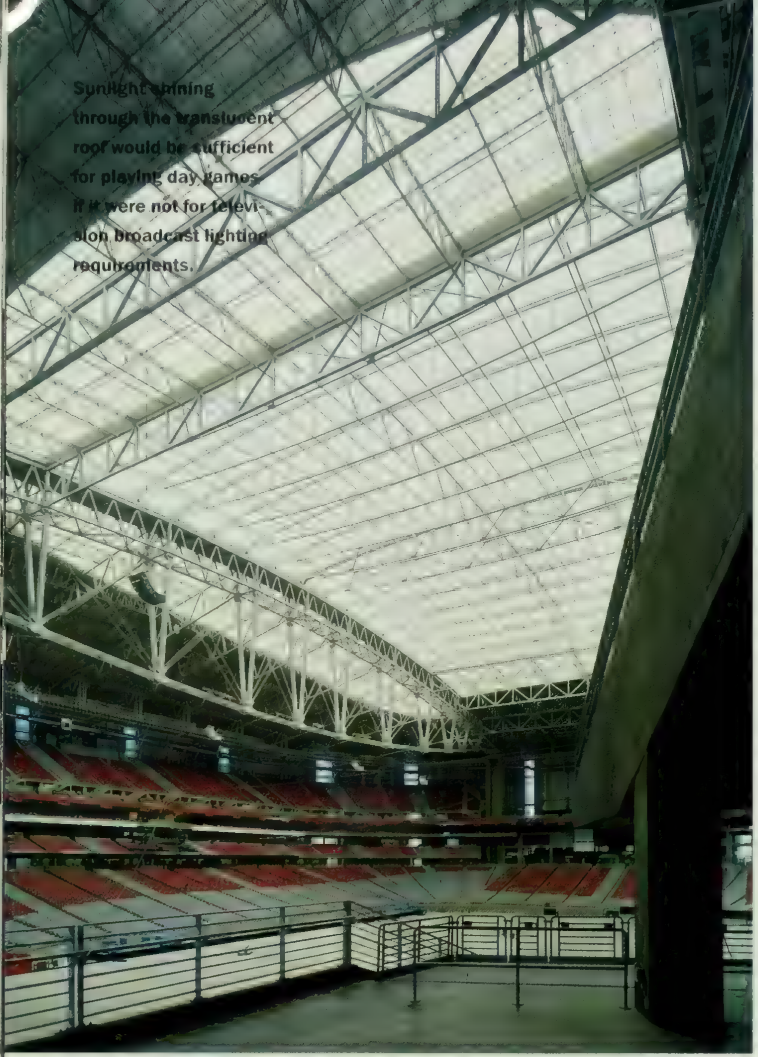
The form, spiraling and segmented, was inspired by barrel cacti indigenous to the Arizona desert, and Native American symbols, such as the coiled snake and the Mandala, says design architect Peter Eisenman, FAIA, who has been an avid football fan since his undergraduate days, when he was a cheerleader at Cornell. But, in addition to an exterior that is surprisingly bold for a U.S. professional sports facility, the $450 million stadium has several attention-grabbing high-tech features. The natural turf field, contained in a gigantic "cake tray," can be rolled out of the building through an opening beyond the south end zone. The arrangement ensures sufficient sunlight for the grass, and also provides a suitable floor surface for events like concerts and conventions. It is the first of its kind in North America.

The other impressive moving part is the retractable roof [RECORD, July 2006, page 257]. Since the Cardinals' move from St. Louis in 1988, the team had played under the brutal sun in an open-air stadium in Tempe, Arizona, where it was plagued by poor attendance, especially at early season games. But now, spectators can watch the game in shaded air-conditioned comfort. In cooler weather, operable twin panels, which meet at the 50 yard line, part to create a 240-by-360-foot roof opening in about 12 minutes. Tickets for this season, its first in the new stadium, sold out in May.

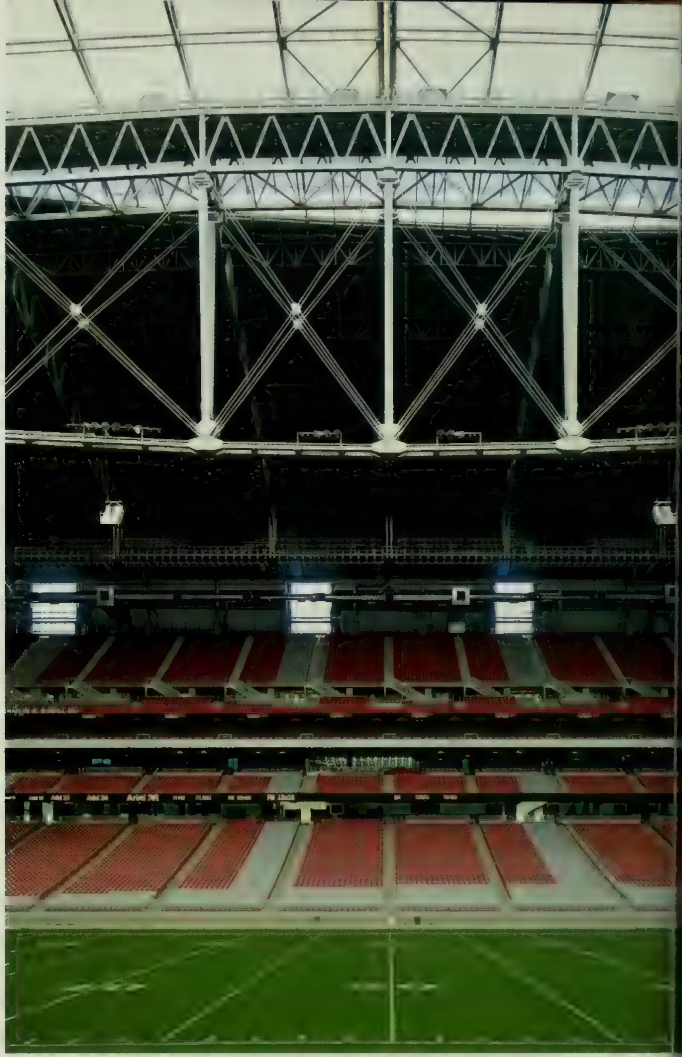
The building is more than a shiny wrapper and mechanized components. The largely translucent roof and its pair of supporting 700-foot-long Brunel trusses evoke 19th-century train sheds. If it were not for television broadcast requirements, sunlight penetrating the Teflon-coated fiberglass fabric would provide sufficient lighting for daytime games.

Although fans have enthusiastically embraced the stadium, pub-

Project: *University of Phoenix Stadium, Glendale, Arizona*
Owners: *Arizona Cardinals; Arizona Sports and Tourism Authority*
Architects: *Eisenman Architects (design architect)—Peter Eisenman, FAIA, design principal; Richard Rosson, AIA, project architect; Marta Caldeira, Pablo Lorenzo-Eiroa, project designers; HOK Sport (facility architect)—Dennis Wellner, AIA, principal in charge; Jeff Spear, AIA, project designer; Jack Boyle, AIA, project manager*
Graphics and suite interiors: *Pentagram Design; Entro Communications*
Engineers: *Walter P Moore (structural, roof); TLCP (structural, concrete frame); M-E Engineers (m/e/p)*



Sunlight shining through the translucent roof would be sufficient for playing day games if it were not for television broadcast lighting requirements.



lic support for the project was not always strong. After defeat of an earlier referendum, Maricopa county voters narrowly passed a measure financing the stadium in November 2000. The deal provided $267 million from a hotel occupancy tax and a car rental surcharge. The Cardinals, primary tenant and landowner, contributed $150 million and were responsible for cost overruns. In return, the team receives game day revenue and naming rights, which it sold to the University of Phoenix in late September.

Even after voter approval, the project suffered legal challenges and setbacks, including a late 2001 rejection of a site near Tempe's Sky Harbor Airport by the Federal Aviation Administration because of security concerns in the wake of 9/11. Construction began on the current Glendale site, in a largely agricultural but rapidly developing area about 10 miles northwest of downtown Phoenix, in April 2003.

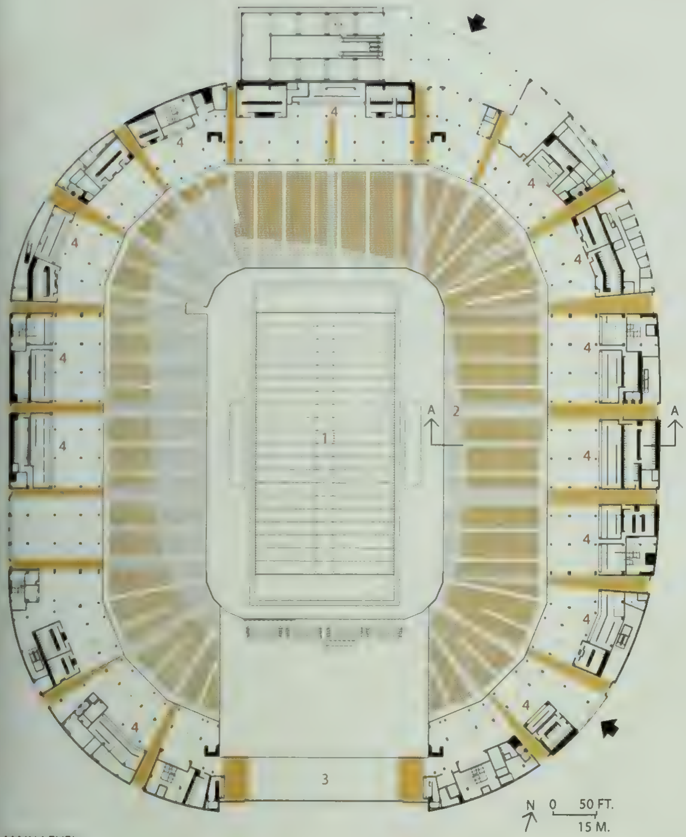
Access to the action on the field drove the configuration of the four reinforced-concrete concourses—one each for upper and lower seating bowls, and two in between serving suites and other "premium seating." These concourses and the many concessions are not closed off in a traditional stadium vomitory. Although the game is not visible from all vantages, fans can, at minimum, see and hear the response of the crowd.

With 63,000 seats, and the potential to add 10,000 more for events like the Fiesta and Super Bowls, circulation was a chief planning issue. To make vertical circulation as efficient, contractors used excavation soil to build up the site around the stadium, allowing the field to be depressed 36 feet below grade and the main concourse. About 40 percent of the spectators descend after entering to seats in the lower bowl. "This tempers the need for stairs and ramps," says Dennis Wellner, AIA, principal in charge of the project for HOK Sport, the stadium's facility architect.

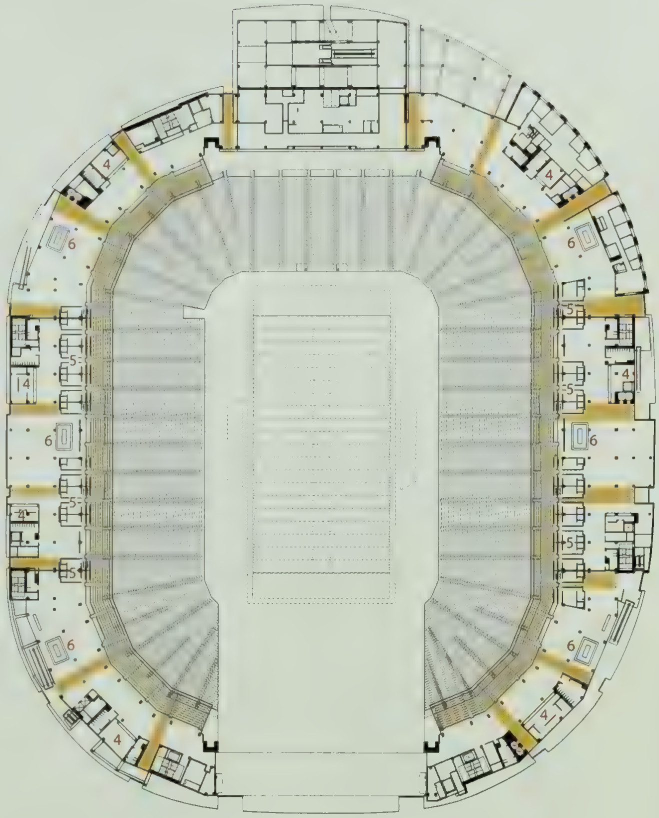
Fans that do need to ascend use escalators or ramps inserted in the zone between the steel skin and the concrete stadium. The most spectacular of these spaces is at the building's north end, where the snake begins its coil around the cactus. Light filters through the canyons and the steel-bent structure that carries the load of the building envelope to the concrete frame. Eisenman refers to the quality of this space as "Piranesian," not because it is filled with the chains and torture devices of the 18th-century Italian artist's *carceri*, but because it has an affinity for the more benign, yet still exciting, qualities of the prison prints, such as their multilevel organization and contrast between light and dark.

Eisenman has used the canyons as a device to tie inside and out. They allow daylight into the vertical circulation spaces and concourses and offer views of the surrounding valley. He has marked the location of these slots with red, raylike stripes on the concourse floors. And in a playfully subversive move, he has extended the pattern to the seating bowl and combined it with the motif of the snake coil, but in the reverse of the direction the reptile wraps around the exterior. "I did everything I could to challenge the building's symmetry," says Eisenman.

This reverse coil is carried through to the roof, making a halo of



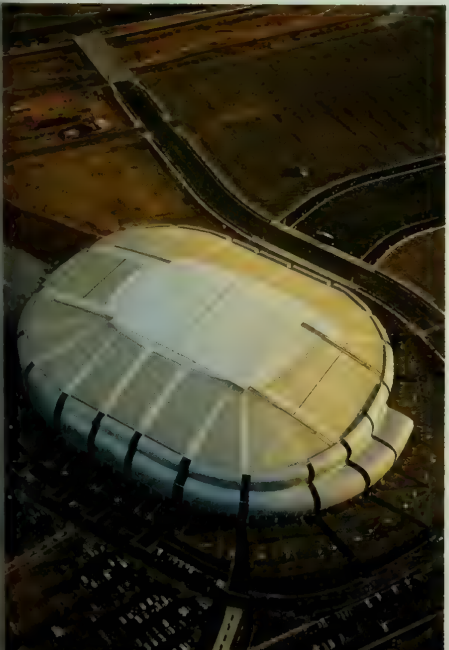
MAIN LEVEL

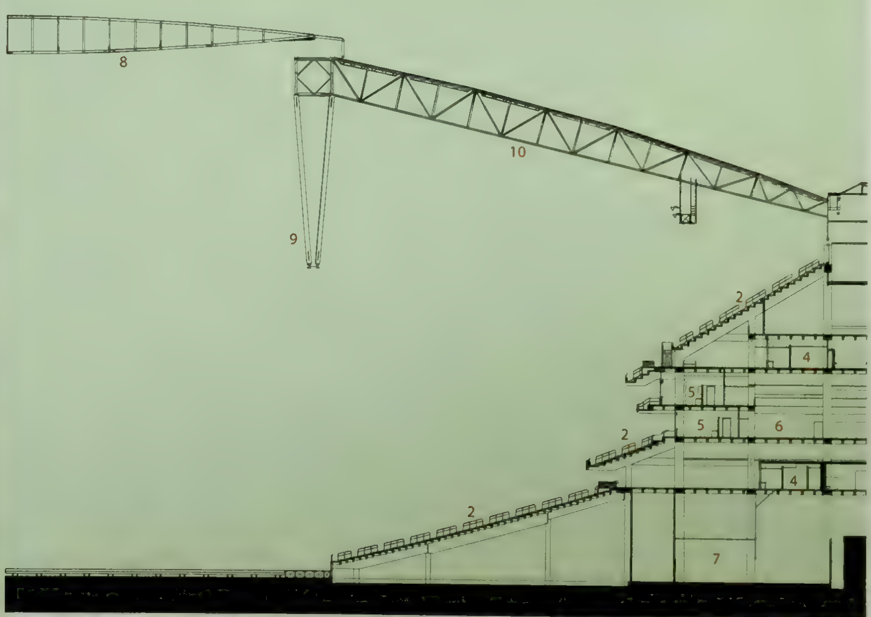


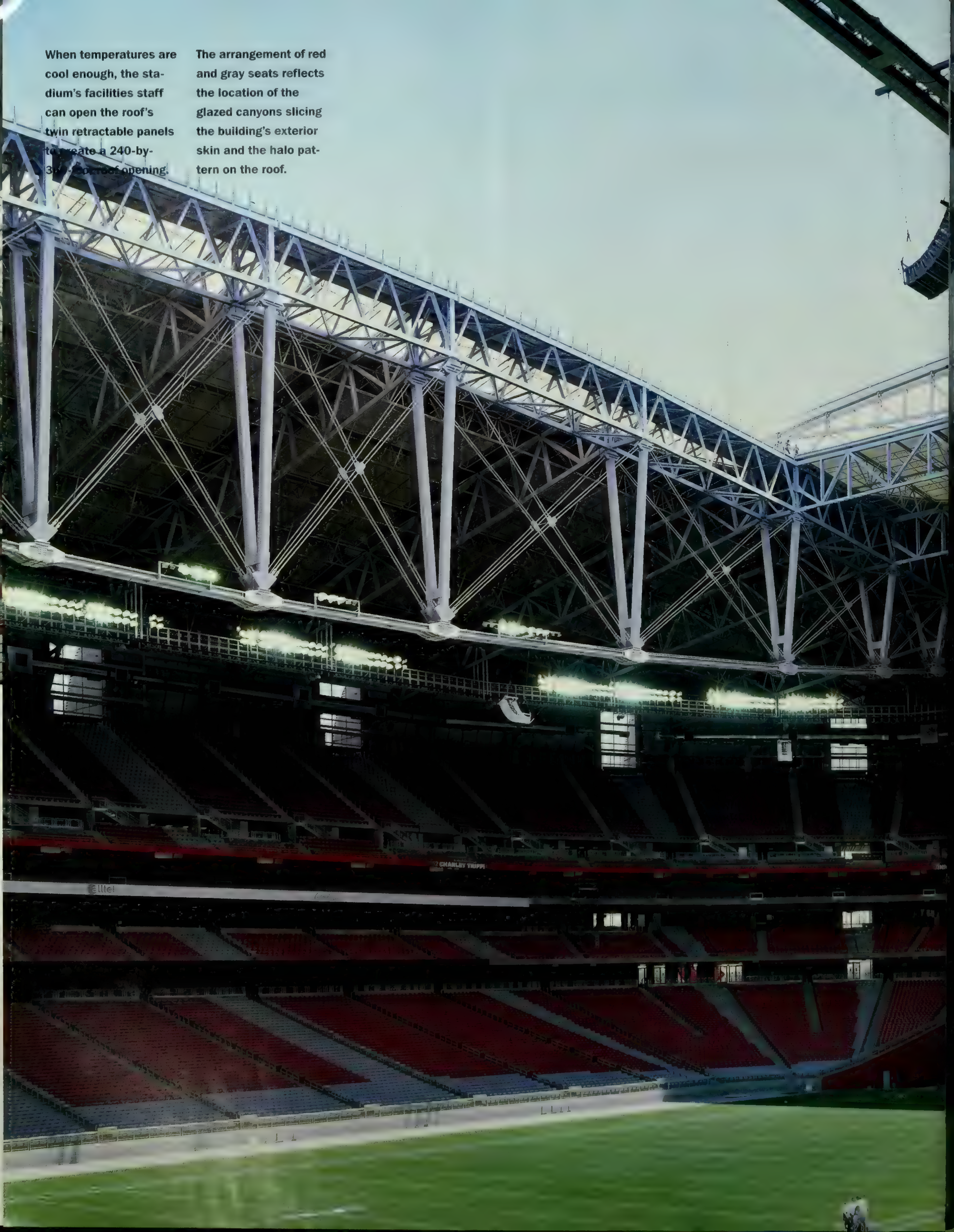
CLUB LEVEL

The field rolls under a main concourse bridge to a dedicated space just outside the stadium's southern end.

1. *Playing field*
2. *Seating*
3. *Concourse bridge*
4. *Concessions*
5. *Suites*
6. *Club lounge*
7. *Main commissary*
8. *Operable roof*
9. *Brunel truss*
10. *Fixed roof*

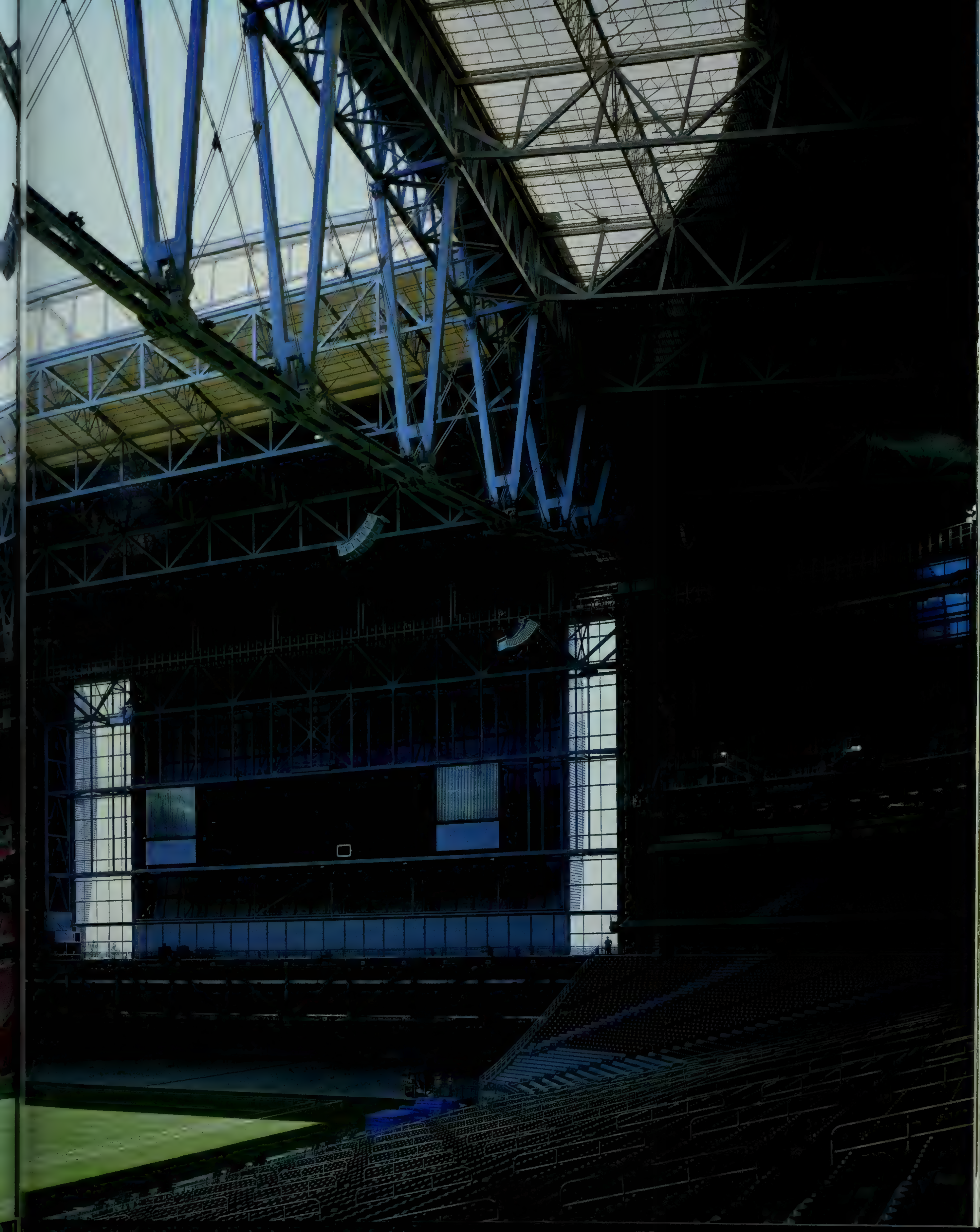


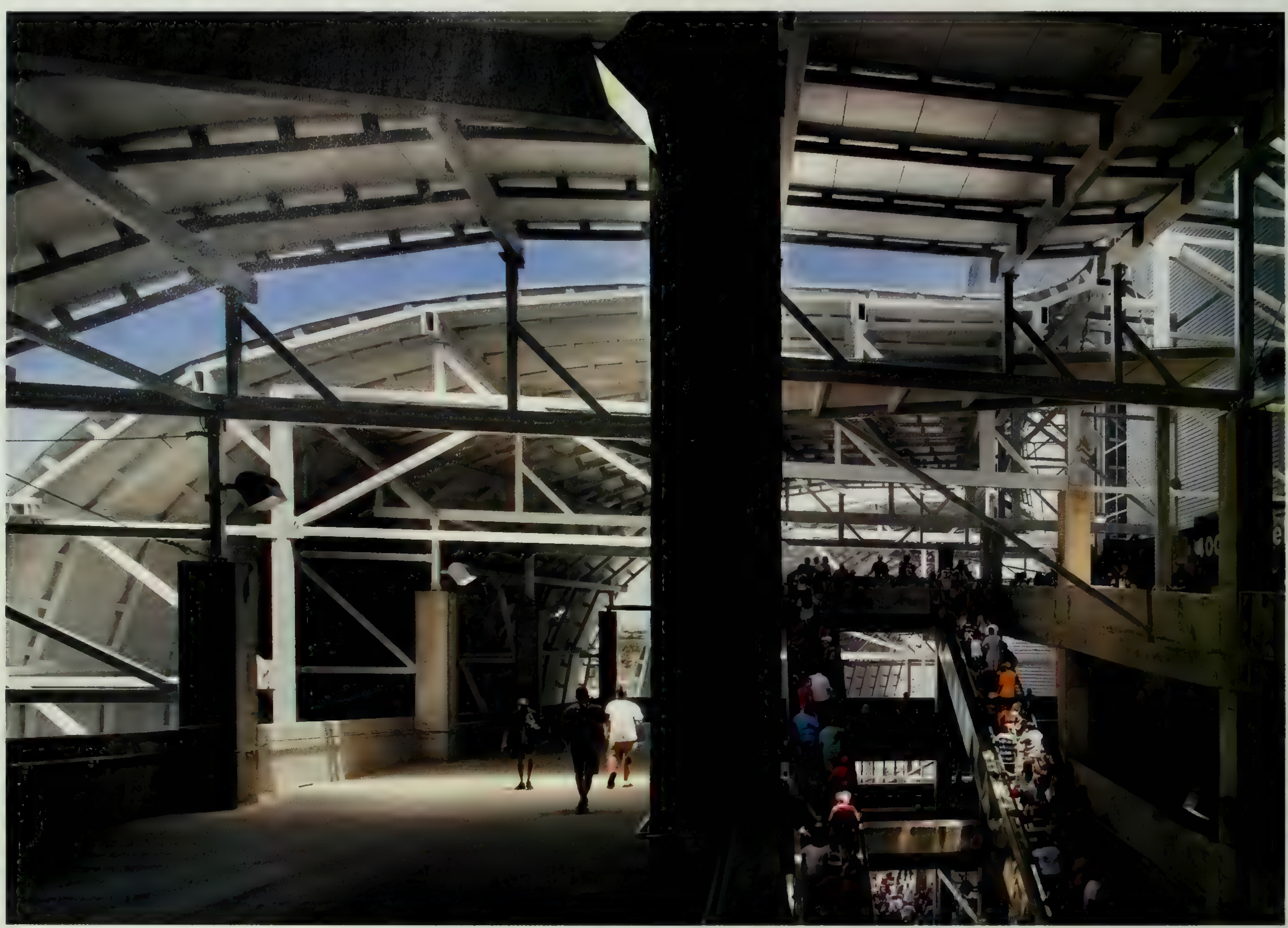




When temperatures are cool enough, the stadium's facilities staff can open the roof's twin retractable panels to create a 240-by-3[illegible]-foot roof opening.

The arrangement of red and gray seats reflects the location of the glazed canyons slicing the building's exterior skin and the halo pattern on the roof.





The 88 suites (left) ring the second and third concourse levels. Each holds between 16 and 20 spectators. The cork floors and cardinal-red upholstered seating diverge from the walnut-and-brass suite interiors typical of other sport venues.

translucent fabric around the retractable panels. The canyons are also extended to the roof, but are articulated on the exterior as two different colors of opaque single-ply roofing. In early renderings, these rays were depicted as translucent material. Their reduction to a surface expression, visible only from the outside and from far away, was an unfortunate concession to the realities of budgets and structure. But despite the inevitable compromises, the building is still a powerful presence—one that fulfills the team's mandate for a "modern and forward looking" stadium, says Michael Bidwill, the team's vice president and general counsel.

Even Wellner, whose firm's much-lauded Camden Yards in Baltimore began the trend toward ballparks that evoke the days of Babe Ruth, says the Cardinals Stadium may create opportunities for more expressive U.S. sports facilities. "My hope is that more architectural freedom will come out of projects like this." ■

Sources

Structural concrete: *Kiewit Western*

Structural steel: *Schuff Steel*

Exterior metal panels: *Crown Corr/Centria*

Roof and field mechanization: *Uni-Systems*

Fabric roof: *Taiyo Birdair*

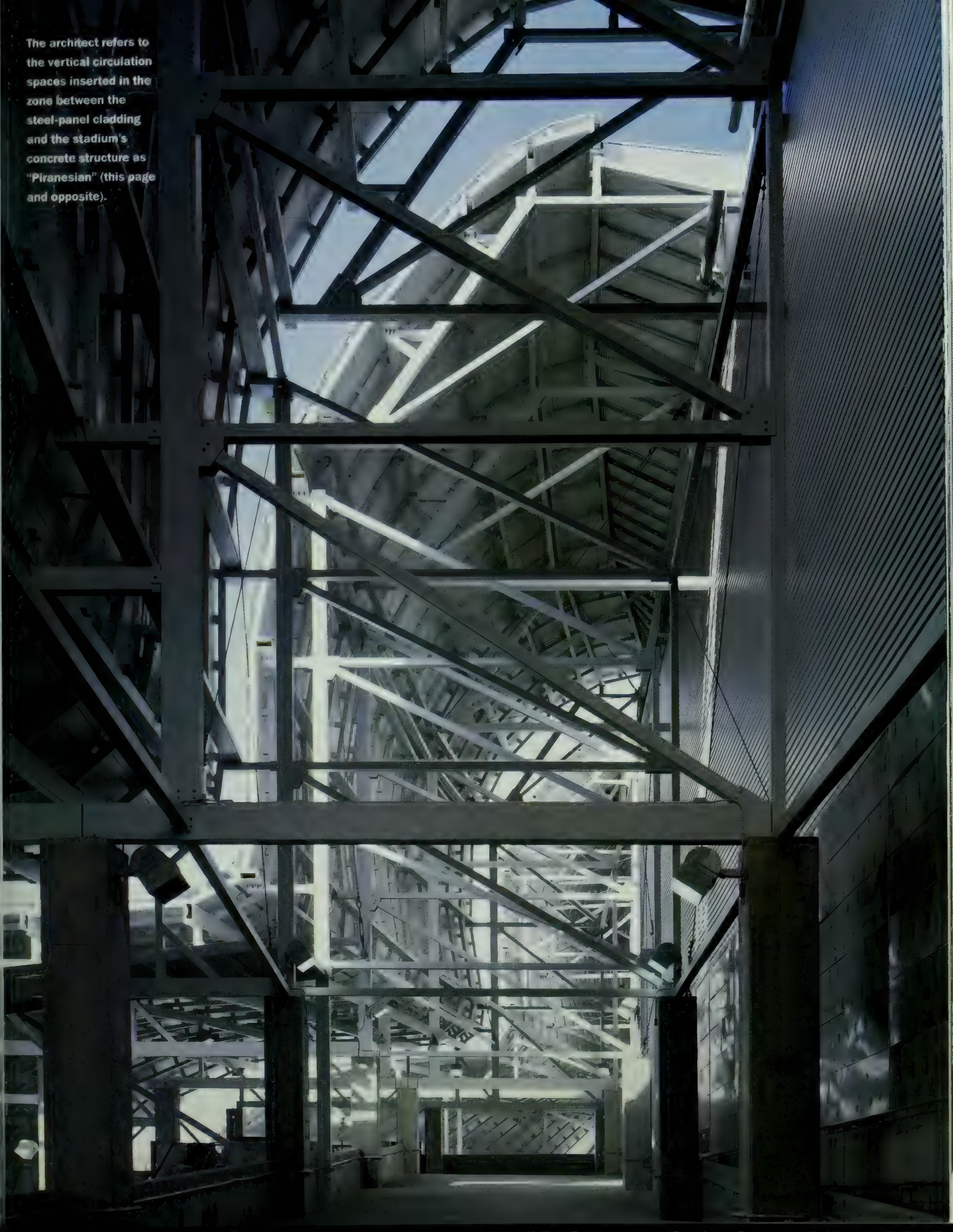
Playing field: *Valley Crest*

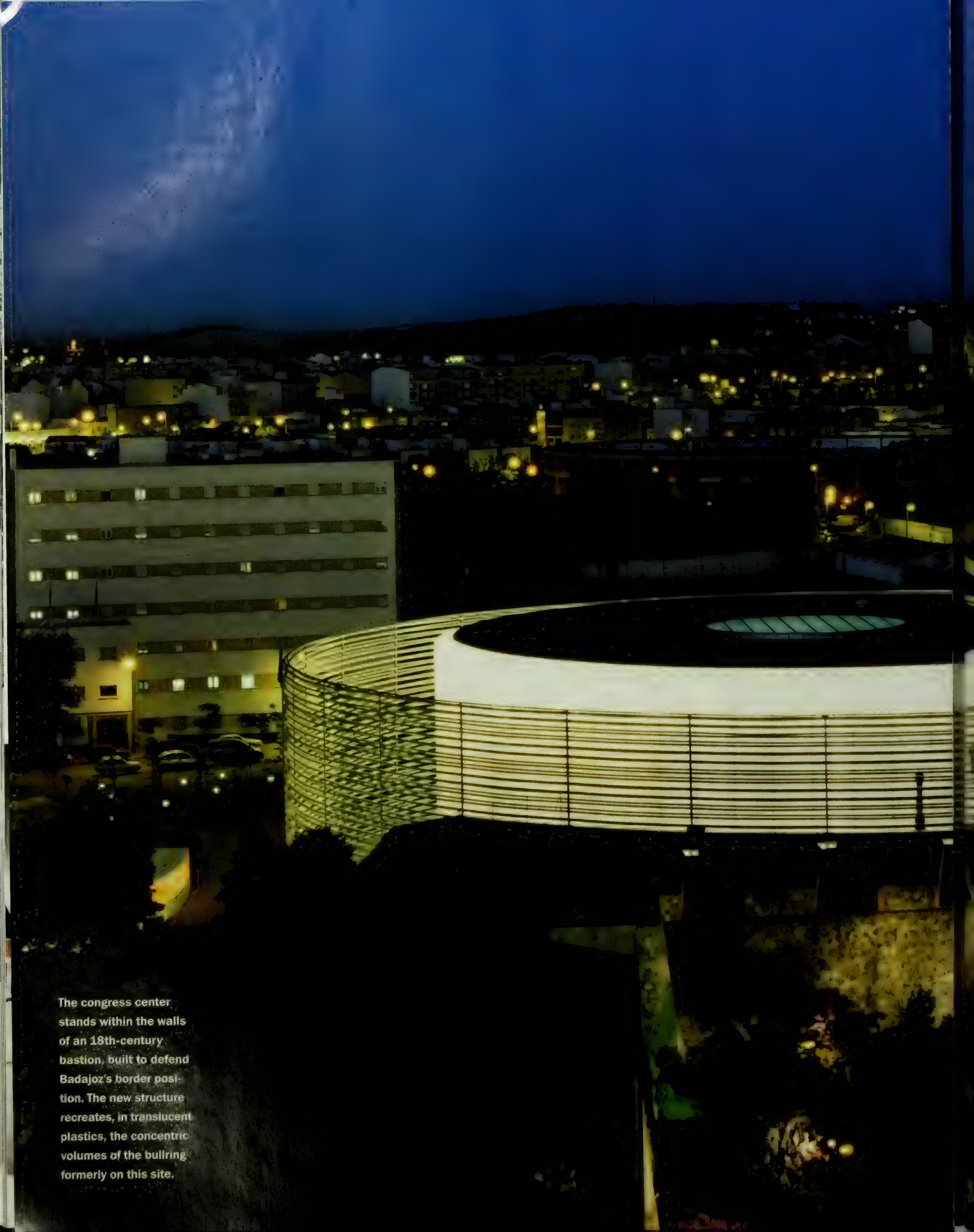
General contractor: *Hunt Construction Group*

For more information on this project, go to Projects at **archrecord.construction.com**.

PHOTOGRAPHY: DAVID SUNDBERG/ESTO; © ARIZONA CARDINALS (TOP)

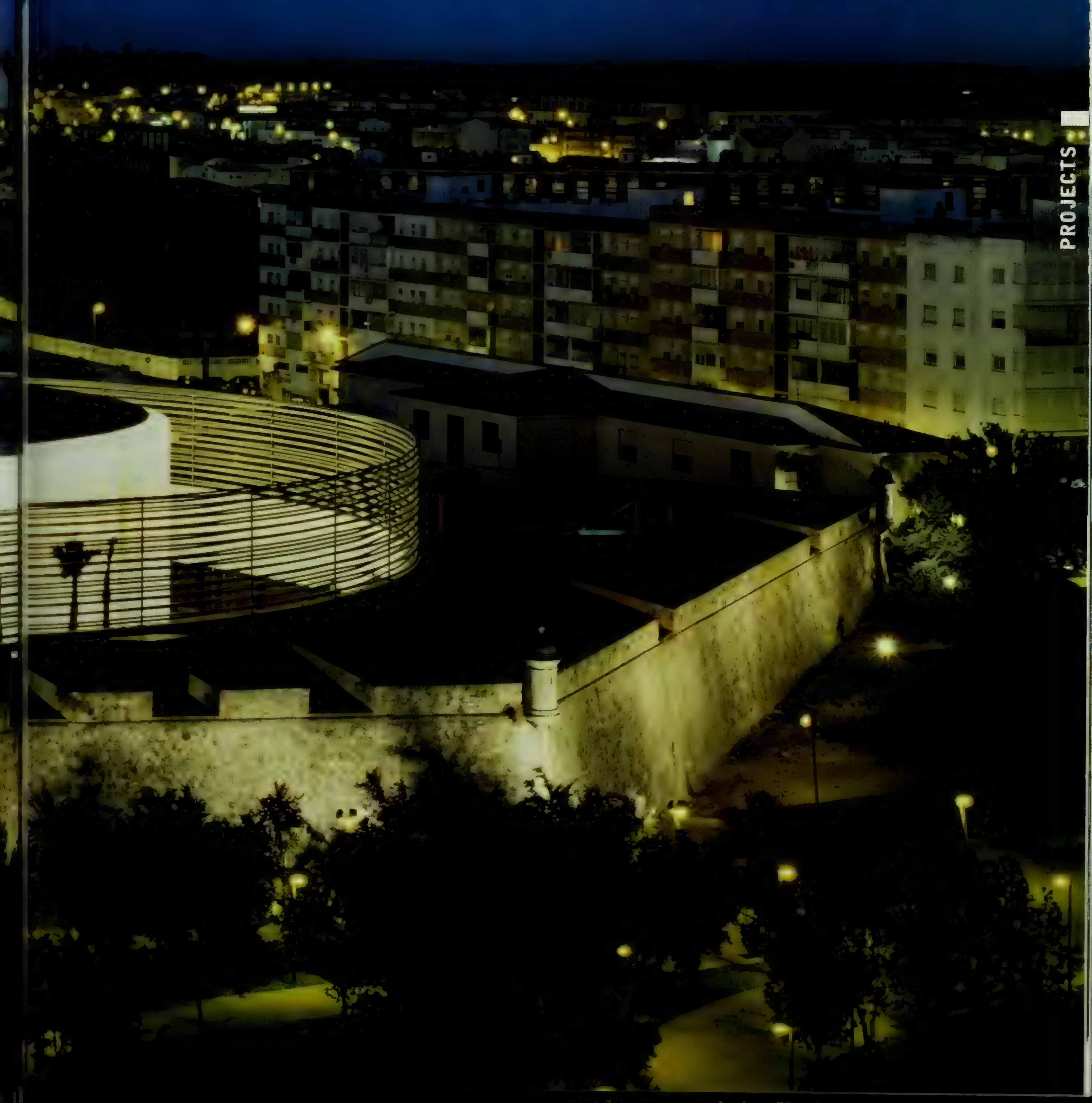
The architect refers to the vertical circulation spaces inserted in the zone between the steel-panel cladding and the stadium's concrete structure as "Piranesian" (this page and opposite).





The congress center stands within the walls of an 18th-century bastion, built to defend Badajoz's border position. The new structure recreates, in translucent plastics, the concentric volumes of the bullring formerly on this site.

Within the fortifications of a remote Spanish city, **selgascano** inscribes the **BADAJOZ CONGRESS CENTER** into the footprint of a once-bloody bullring



By David Cohn

Although Spanish architects are well acquainted with the intricacies of introducing contemporary buildings into historic urban fabric, the site for the new Congress Center in Badajoz posed unprecedented difficulties. Here, in the provincial capital of Spain's relatively poor, rural, and isolated Extremadura region, an 1857 bullring once stood. The arena (demolished in the 1980s) had risen within the walls of a five-sided 18th-century bastion, erected to defend the city's strategic position near the Portuguese border. In the two intervening centuries, urban expansion had embedded those elaborate fortifications.

The painful history associated with the bullring complicated the formal challenge posed by the project's open-competition brief. In August 1936, Badajoz was the site of one of the Spanish Civil War's first major battles and, in this arena, Franco's forces executed hundreds of Republican prisoners. Many in the city still hesitate to dwell on that traumatic past, exhibiting a reluctance shared by the leaders of the region's current Socialist government, this project's clients. While repudiating Franco's dictatorship, they skittishly avoid mention of the killings in publicity about the congress center, preferring to emphasize its benefits on the local economy, culture, and tourism. Others, however, including opposition leaders of the United Left party, protested its construction, calling for a memorial on the site.

With a scheme that skillfully navigates the conflicts of memory, denial, and the demands of progress, Madrid architects José Selgas and Lucía Cano won the competition—their first important commission. Their firm, selgascano, has since won competitions for congress centers in Placencia, also in Extremadura, and the Spanish coastal city of Cartagena, and is building public housing in Madrid. At Badajoz, they carefully inscribed an innovative structure within the outlines of the original bullring, establishing a fresh and dynamic urban presence that pays homage to the past and the future. The approach, recalls Selgas, came from the realization that "what we were looking for was right before our eyes." The challenge became how to "do as little as possible" in order to keep the character of the site legible.

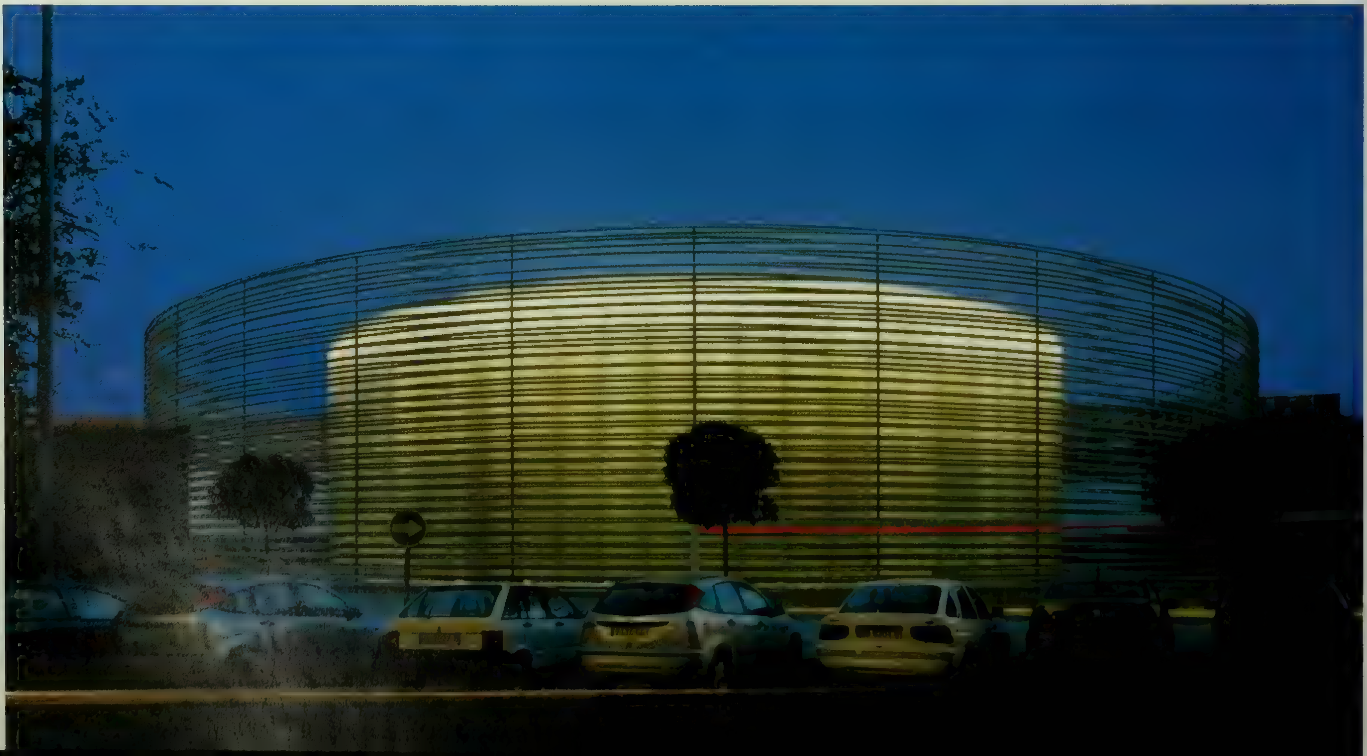
David Cohn is RECORD*'s Madrid-based correspondent.*

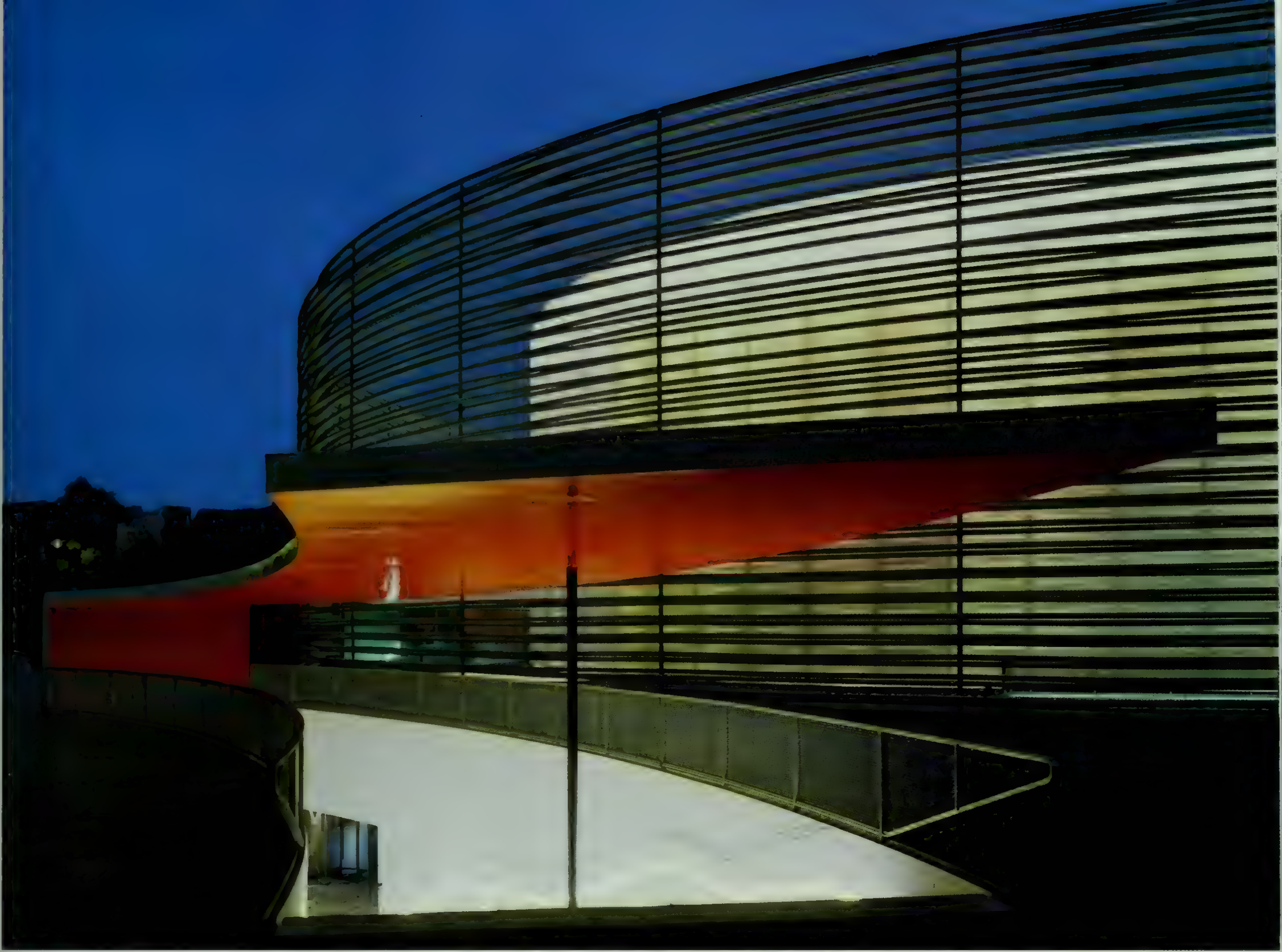
Rendered in translucent plastics, the scheme recreates the concentric volumes of the former bullring: A cylindrical lattice of fiberglass-reinforced polyester-resin tubes encircles a drum clad in translucent Plexiglas tubes over clear glass panes. The inner drum, containing the auditorium, takes its footprint from the former *albero*, or ring of sand, where bullfights once took place, while a roofless circulation path between the layered cylinders occupies the street-level zone of the former grandstands. As Selgas says, this relationship reverses the bullring's disposition of spectators versus open space. Much of the 180,000-square-foot congress center lies underground, including its lobby, which visitors reach from the entry plaza via a stair descending beneath the red underside of a curving, cantilevered canopy. The 1,000-seat main auditorium, rising from this lower level to fill the inner drum, can accommodate opera, theater, orchestral music, and conferences. The architects have tucked secondary spaces—a flexible 400-seat auditorium, a café, meeting rooms, and a rehearsal hall for the resident Orchestra of Extremadura—into the surrounding bastion, accessed from the ring of outdoor circulation.

"We used two families of materials: those proper to the bastion, like concrete and packed earth, and lightweight ones proper to the void," Selgas explains. In his view, the project's low budget of $25 million, dictated by the region's poverty, provided the freedom to experiment with money-saving plastics. Light and ephemeral in appearance—like a circus tent or fair attraction—the structure distinguishes clearly between old and new.

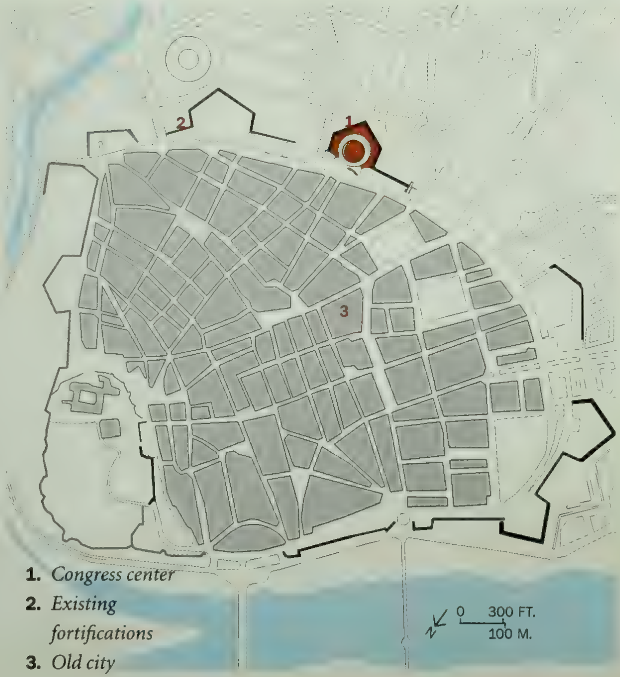
The lobby adds to that festive effect with multicolored fluorescent lighting and deep-red flooring (made from cork), contrasting dark, eggplant-colored plaster ceilings, and white walls. Illuminating these vibrant surfaces, daylight enters through a long, curving trench skylight and from the stairs to the outdoor circulation ring. On the auditorium's mezzanines,

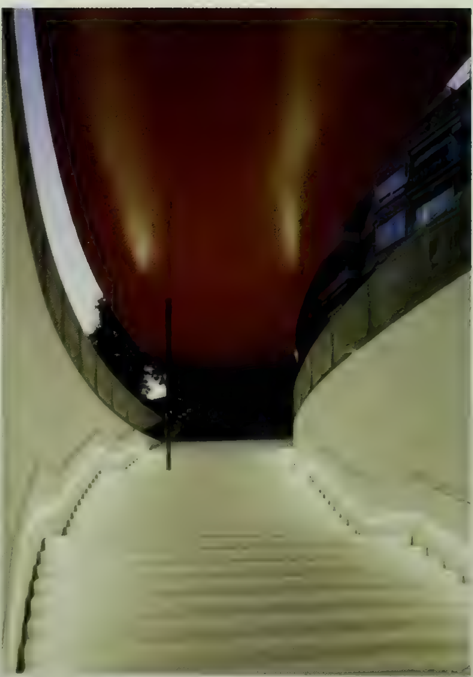
Project: *Congress Center, Badajoz, Spain*
Architect: *selgascano—José Selgas, Lucía Cano, principals*
Engineers: *Fehcor (structural); JG Asociados (installations); Pedelta (polyester structure)*
Acoustic consultant: *Higini Arau*
General contractor: *Joca-Placonsa*

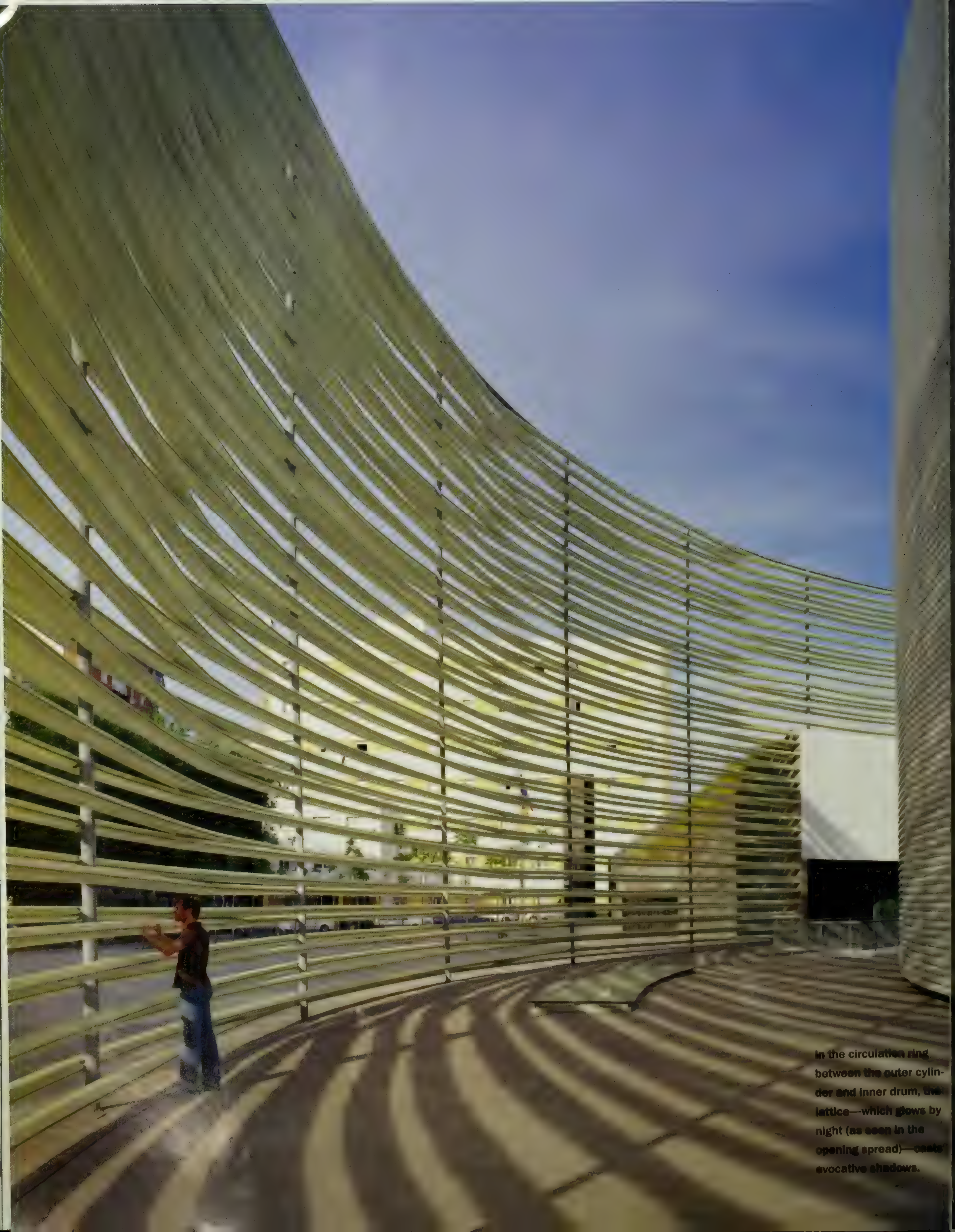




A curving, 96-foot-long cantilevered canopy (above) hovers over the stair descending from street level to the auditorium lobby. The canopy's red underside recalls a bullfighter's cape (above and below right). The structure's cylindrical lattice of polyester-resin tubes encircles a drum clad in Plexiglas tubes over glass panes (opposite).

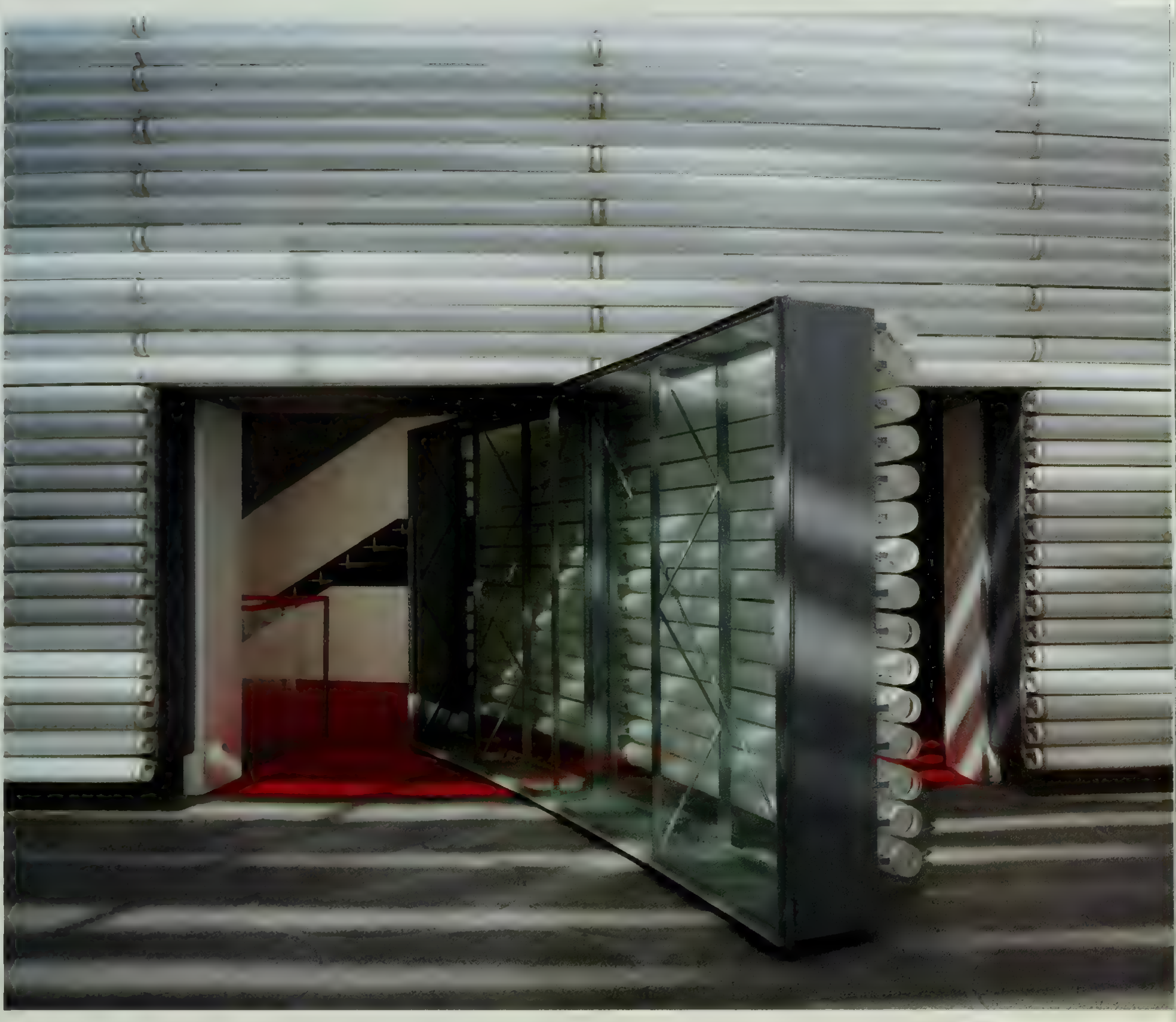


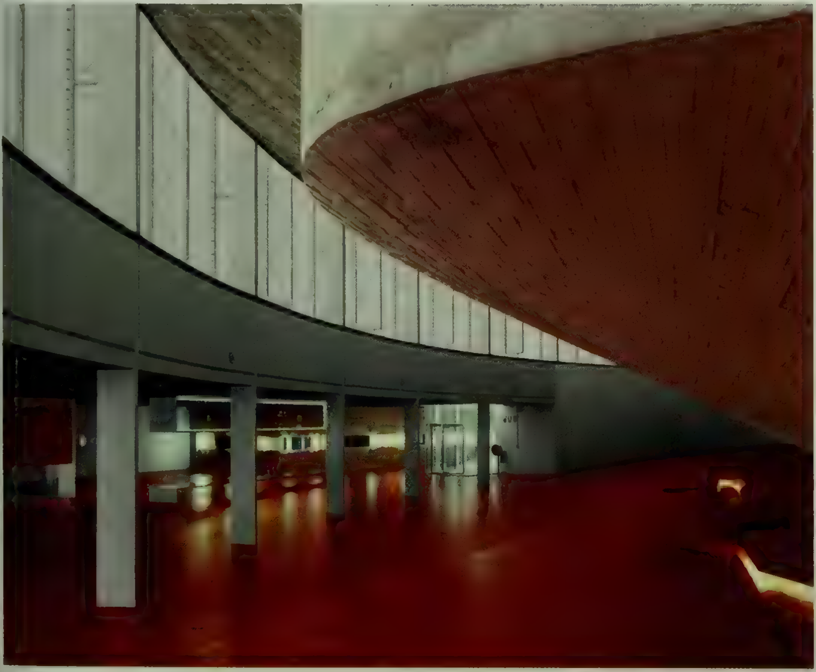


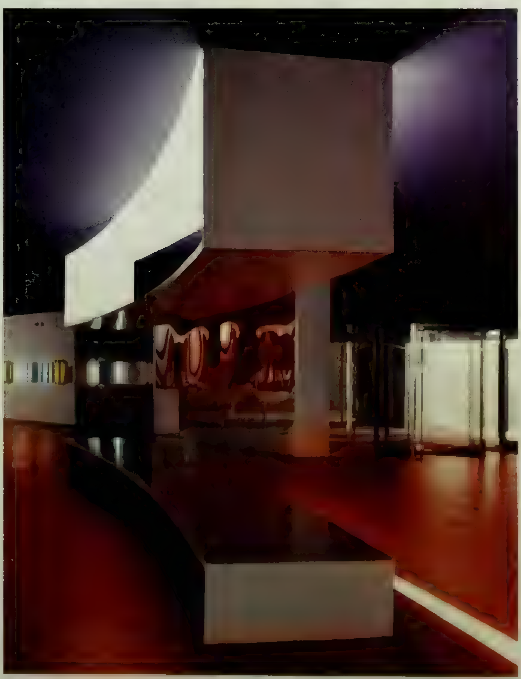


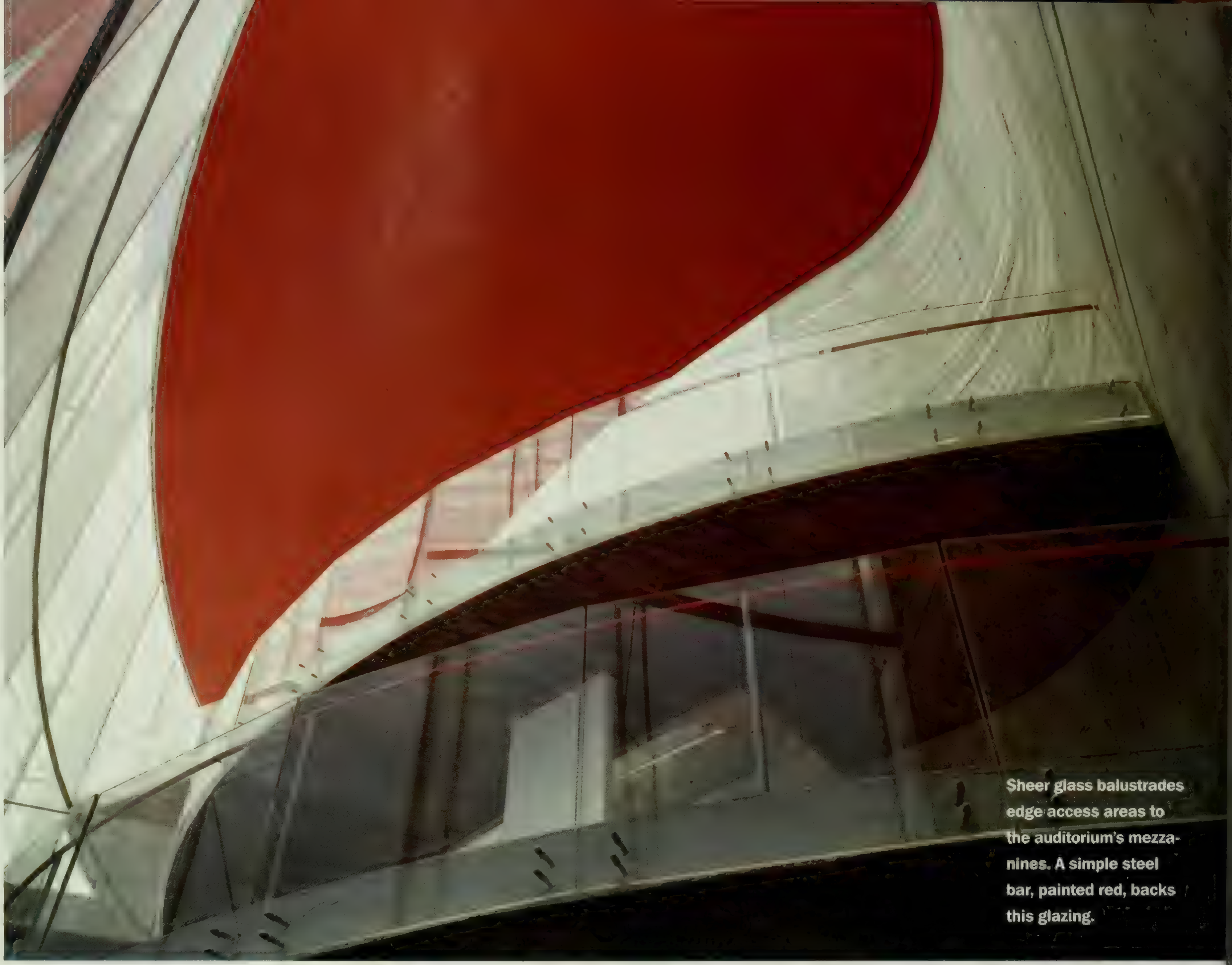
In the circulation ring between the outer cylinder and inner drum, the lattice—which glows by night (as seen in the opening spread)—casts evocative shadows.

A pivoting exit from one of the auditorium's upper mezzanines (right) opens onto the outdoor circulation ring, revealing the wall's layers of glass and Plexiglas with thin vertical trusses as supports. The lobby (below left) has casual seating, sculpted into the red floor and lit by recessed fluorescent tubes. Here, the auditorium's underbelly, of board-formed concrete, appears overhead. A curving bench (below right) echoes the 30-foot-long arc of a light diffuser beneath the lobby skylight.

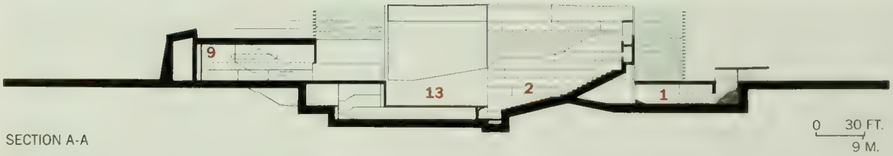






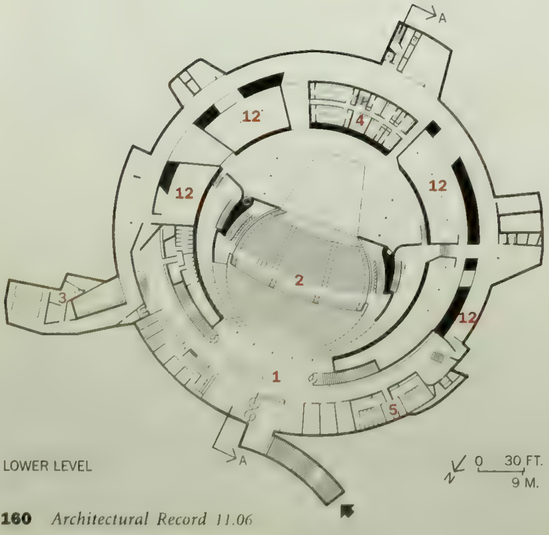


Sheer glass balustrades edge access areas to the auditorium's mezzanines. A simple steel bar, painted red, backs this glazing.

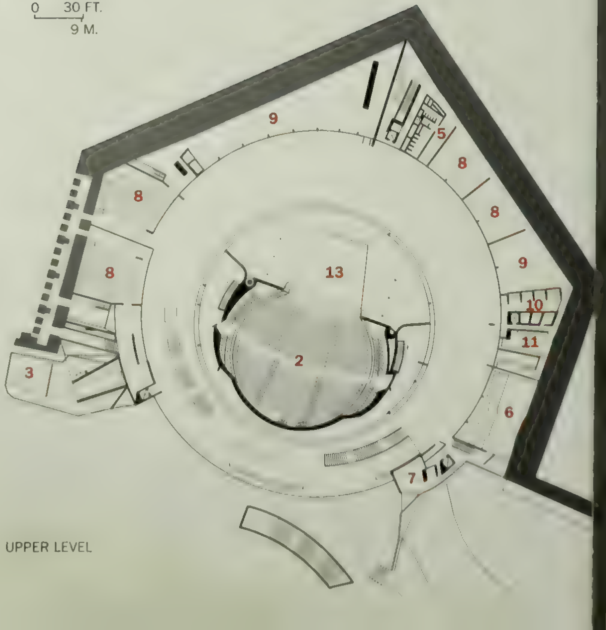


SECTION A-A

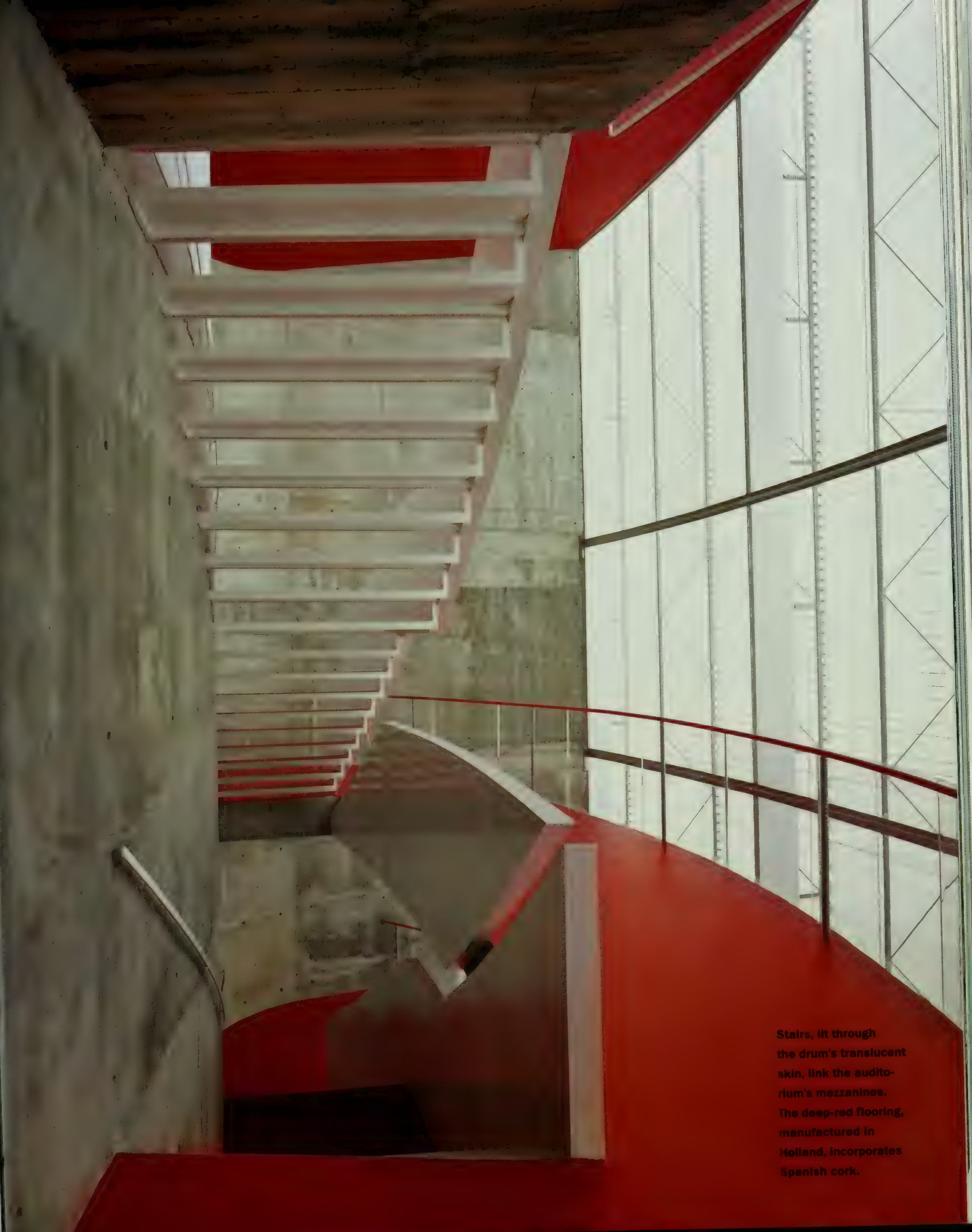
1. *Lobby*
2. *Auditorium*
3. *Service entry*
4. *Dressing rooms*
5. *Bathrooms*
6. *Café*
7. *Box office*
8. *Secondary hall*
9. *Exhibitions*
10. *Storage*
11. *Kitchen*
12. *Mechanical*
13. *Stage*



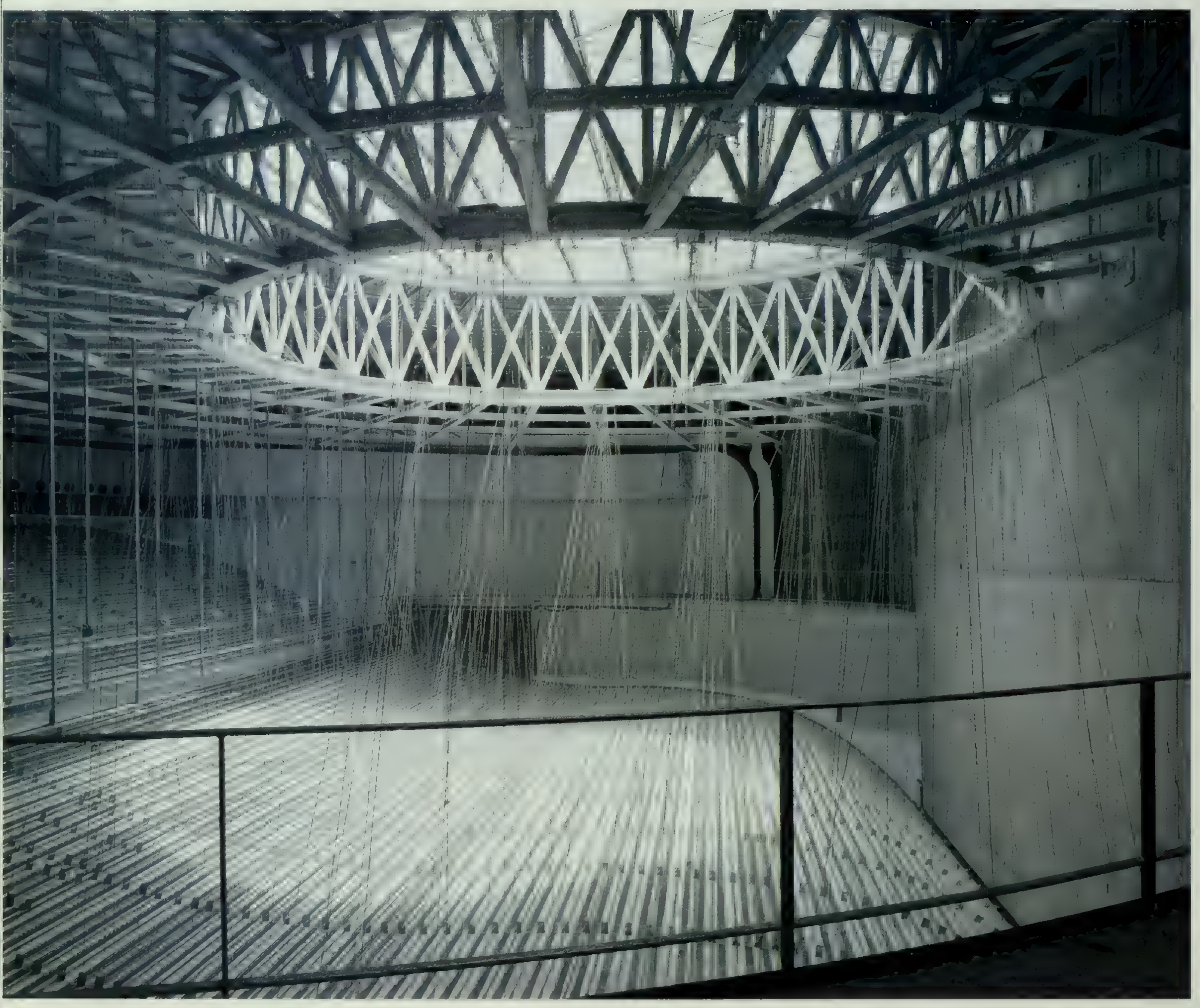
LOWER LEVEL



UPPER LEVEL



Stairs, lit through the drum's translucent skin, link the auditorium's mezzanines. The deep-red flooring, manufactured in Holland, incorporates Spanish cork.



The auditorium rises to a glazed oculus (this page and opposite) that will include a shade for blocking out daylight. The suspended ceiling, with alternating slats of wood and translucent polycarbonate, was devised to enhance acoustics while retaining luminosity. The ceiling hangs from a magnificent array of tensile wires, visible from some of the upper balconies.

the same red flooring, glowing beneath the sun's rays and electric light at the drum's glazed perimeter, echoes the entry canopy's jazzy crimson underside.

The auditorium, by contrast, offers cool tones, with blue upholstered seats and walls of translucent polycarbonate strips, backlit by fluorescent tubes. This spectacular circular space rises to a glazed oculus, 40 feet in diameter, with a suspended acoustic ceiling of alternating slats of wood and transparent polycarbonate, combining visual transparency with acoustic reflectivity. (A horizontal *toldo*, or curtain, yet to be installed, will black out daylight.) This riff on the Pantheon's oculus harks back to Selgas's residency at the Spanish Academy in Rome in the 1990s, when Cano was working in Madrid for her father, the noted architect Julio Cano Lasso.

The hall's circular form and glowing polycarbonate walls presented acoustic challenges. Consultant Higini Arau, who has played a key role in defining the sound quality of many of Spain's new performance spaces, gave the suspended ceiling parallel folded planes, he says, "to transform harmful reflections from the walls and balconies at the back of the hall," eliminating uneven focal points of sound. He studied the dynamic elasticity, density, and buffering qualities of the Plexiglas walls, adjusting the thickness to match high-quality wood in response to low frequencies.

The architects hung the ceiling from a magnificent contraption of tensile, splayed wires—recalling a suspension bridge or the inside of a piano—which remains visible from sections of the upper balconies. Alternating flanges of polycarbonate and steel stiffen the mechanism, while keeping the sheer luminosity uncompromised. Throughout the building, Selgas and Cano's inventive systems allowed them to mount plastic materials while retaining translucency, as in the auditorium, where backlit wall panels project on thin stainless-steel tubes from the stud frames. For the drum's exterior, they heat-molded the Plexiglas tubes to create curves and mounted them discretely with steel bracket rings on light vertical steel trusses, separating the tubes from the cylinder's glass inner walls. The resulting continuous surface remains uninterrupted by structural members.

The architects skillfully developed the formal implications of the circle, dramatically deploying form, materials, color, and light to underscore its nonorthogonal geometry. Particularly dashing are the curving cantilevers, including the 96-foot-long entry canopy. The building's abstract planes of color evoke the formal logic of early Modernism, from De Stijl to Le Corbusier, while the bold red recalls the bullfighter's cape, the blood shed in this arena, and the blinding, late-day sunlight in the ring. In subtle ways, a shadow of the tragic memory emerges—at least, for those choosing to sense it—within this sparkling, local cultural mecca's festive spirit. But so far, no one has offered a more forthright acknowledgement of Badajoz's past. ■

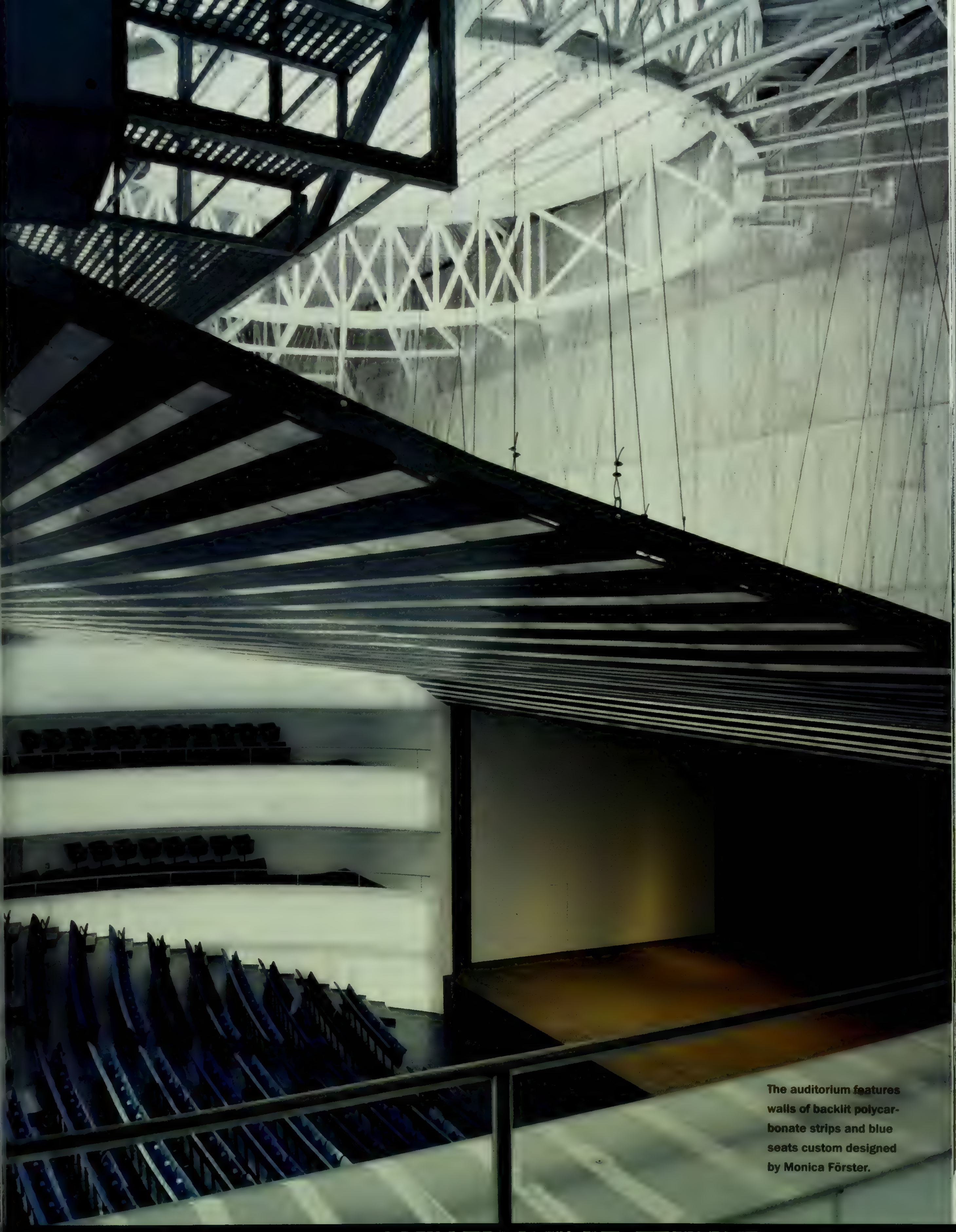
Sources

Floor covering: *Forbo; Mondo*

Walls: *Degussa; Fiberline*

Plumbing fixtures: *Duravit; Roca*

For more information on this project, go to Projects at **archrecord.construction.com**.



The auditorium features walls of backlit polycarbonate strips and blue seats custom designed by Monica Förster.

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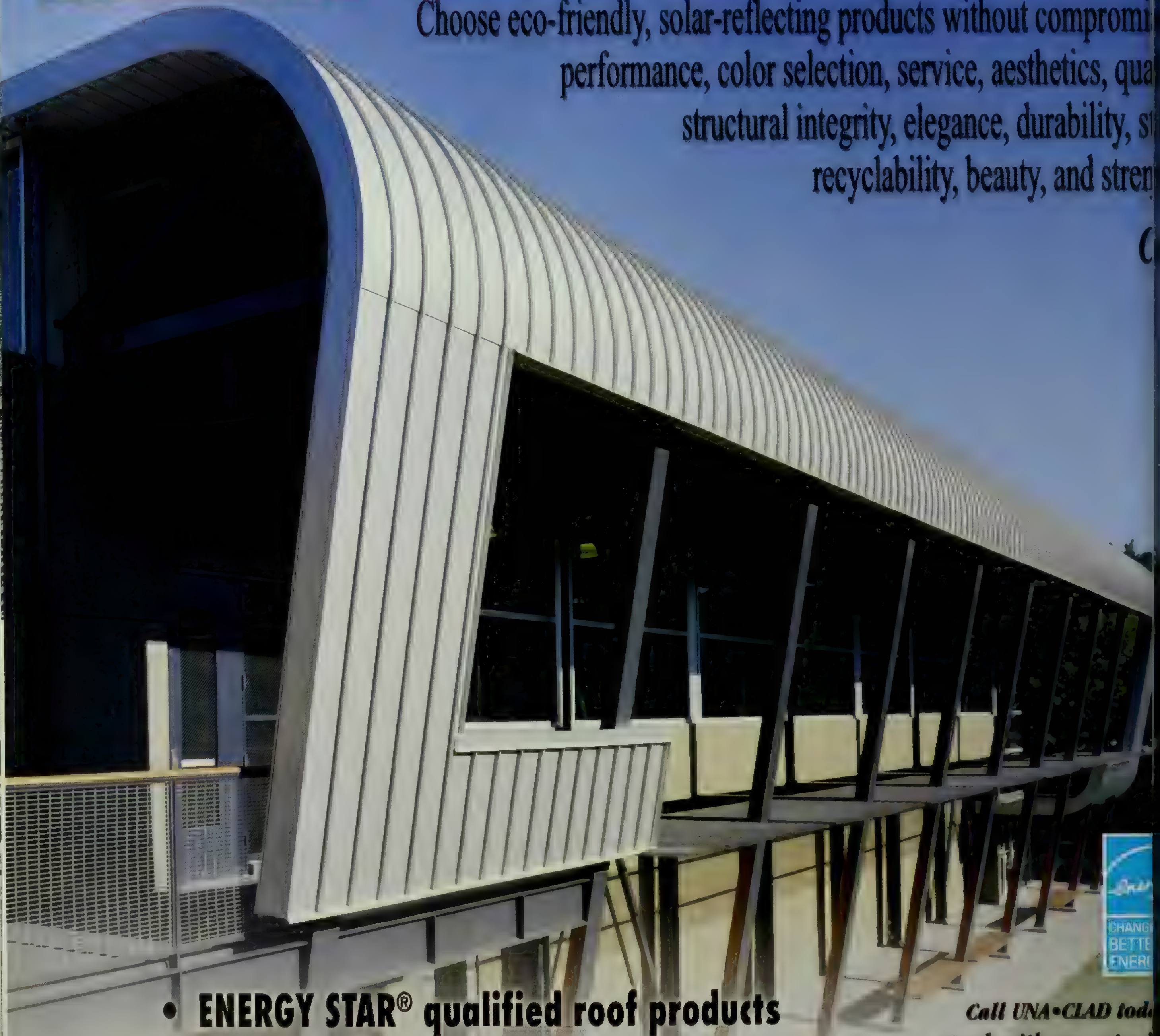

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Acting Locally

Small learning centers forge intimate connections with unique sites to bring people together in our increasingly self-directed public sphere.

PRAIRIE RIDGE ECOSTATION FOR WILDLIFE & LEARNING

Raleigh, North Carolina

Frank Harmon creates an airy outdoor classroom whose simple design lets the surrounding landscape's gentle beauty speak for itself.

HENRY A. WALLACE VISITOR AND EDUCATION CENTER

Hyde Park, New York

R.M. Kliment & Frances Halsband Architects add an inviting gateway center to the Franklin D. Roosevelt Presidential Library and Museum.

WARREN SKAAREN ENVIRONMENTAL LEARNING CENTER

Round Mountain, Texas

Robert Jackson & Michael McElhaney Architects help protect Westcave Preserve, a nature sanctuary, with a green-minded building.

OLD LAS VEGAS MORMON FORT VISITOR CENTER

Las Vegas, Nevada

Assemblage Studio looks beyond Sin City's casino culture and instead draws on its pioneer roots to design a museum dedicated to the region's history.

For more information on these projects, go to Building Types Study at **archrecord.construction.com**.

By James Murdock

Self-directed communities are thriving on the Internet, evidenced by the success of MySpace.com and other social networking sites. Critics worry that this virtual landscape discourages face-to-face interactions, deepening divisions in our already fractured public sphere. But for every trend, it seems, there is a countertrend. Museums, libraries, and other educational centers are drawing impressive crowds.

Thinking about civic architecture generally calls to mind grand encyclopedic museums, or imposing courthouses and town halls. Big projects remain a staple—if anything, some government structures have ballooned even larger due to security concerns—but sheer size is not a prerequisite for these buildings. As the four small cultural and learning centers profiled in the following pages show, sometimes the most effective public institutions operate with a highly local focus that is reflected in their design.

The Prairie Ridge Ecostation for Wildlife & Learning, in Raleigh, North Carolina, designed by Frank Harmon, is a simple yet stunning outdoor classroom. Essentially a 1,400-square-foot screened porch, it enables visitors to learn firsthand about a patch of surviving grassland in the suburbs. The Warren Skaaren Environmental Learning Center at Westcave Preserve, a 45-minute drive southwest of Austin, Texas, provides visitors with a similar opportunity to learn about a sensitive canyon oasis in Texas's arid Hill Country. Robert Jackson & Michael McElhaney Architects created an unobtrusive structure whose design demonstrates how green technologies work.

With their smart use of fenestration, R.M. Kliment & Frances Halsband Architects establish a strong connection between the new Henry A. Wallace Visitor and Education Center and the historic Franklin D. Roosevelt Presidential Library and Museum, in Hyde Park, New York. And in Las Vegas, Assemblage Studio looked beyond the Strip's glitzy casinos and drew inspiration from a surviving relic of the city's rugged pioneer heritage to design a compact history museum at the Old Las Vegas Mormon Fort Visitor Center.

The education and cultural centers in this Building Types Study provide intimate, site-specific spaces where people come together to learn about their immediate surroundings as well as the world beyond. To borrow a phrase from the environmental movement, these civic buildings think globally but act locally—the perfect complement to an Internet age. ■

One: PRAIRIE RIDGE ECOSTATION FOR WILDLIFE & LEARNING

Raleigh, North Carolina

Frank Harmon Architect designs a tree-houselike observation perch for students of the natural world.

By Sarah Amelar

Architect: *Frank Harmon Architect—Frank Harmon, principal in charge; Sara Glee Queen, project manager; Matt Luck, design team*
Client: *North Carolina Museum of Natural Sciences*
Consultants: *Tim Martin (structural); Isaac Panzarella (m/e/p); Consider Design (m/e/p); David Swanson (landscape); Buildsense (general contractor)*

Size: *1,400 square feet*
Cost: *$300,000*
Completion date: *October 2004*

Sources
Structural system: *Paralam by Trusjoist McMillan*
Masonry: *Adams Products*
Windows: *Pella*
Locksets: *Schlage; Baldwin*
Hinges: *Stanley*
Closers: *Norton*
Pulls: *Schlage; Baldwin*
Wall stops: *Rockwood*
Exterior lights: *Rab Electric*
Controls: *Sensorswitch*
Dual-flush toilet: *Caroma*
Rainwater collection system: *Braewater; Shawn Hatley*
Gutters: *Classic Gutters*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

"Spending my childhood along a stream at the edge of a city shaped my life," says architect Frank Harmon, FAIA, of his boyhood in North Carolina. "In those early years, I collected more than 1,000 bird nests," he recalls. "If I hadn't become an architect, I would surely have become a naturalist."

So when the Museum of Natural Sciences, in Raleigh, North Carolina, approached him to create a place where students of all ages could immerse themselves in the natural realm and learn about sustainable living, the fit felt unusually right.

Program

The client initially asked Harmon to help envision an off-site learning center and write a federal grant proposal to finance it. Later, with funds in hand, the museum engaged him to design the 1,400-square-foot "Outdoor Classroom" for its newly founded Prairie Ridge Ecostation for Wildlife & Learning—a 38-acre field site, 1.5 miles from the museum's main building, in downtown Raleigh.

The brief was relatively simple, calling for a screened-in observation deck/classroom with prime views of the site, a small director's office, and restrooms. (For a later phase, Harmon's firm has designed, but not yet built, a sod-roofed dormitory, where students from across the state will be able to stay overnight.)

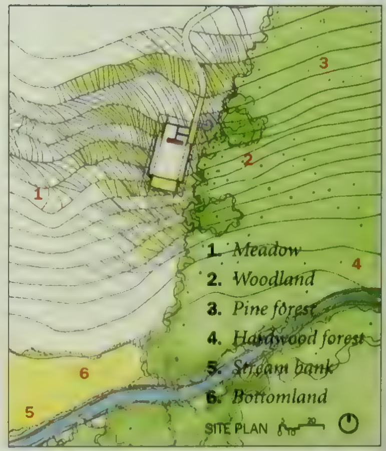
Since 2004, Prairie Ridge has become a nature preserve, gradually bringing back purple martins, caterpillars and butterflies, soaring hawks and vultures, thickets of beauty berries, and trails that engulf visitors amid tall, wind-blown grasses. But the site didn't always look this way.

Until a few years ago, this state-owned land—which, surprisingly, abuts a National Guard headquarters and interstate highway—provided cow pastures for North Carolina University's agriculture school. The museum also had a foothold here: a repository, built in the 1990s to house a preserved specimen of every type of insect and animal found in North Carolina.

As encroaching roads prompted the teaching farm to relocate, the surrounding state acreage eventually became poised, parcel by parcel, for private development. Before it was too late, the museum's leaders stepped in to reclaim a swath of North Carolina's long-lost prairies.

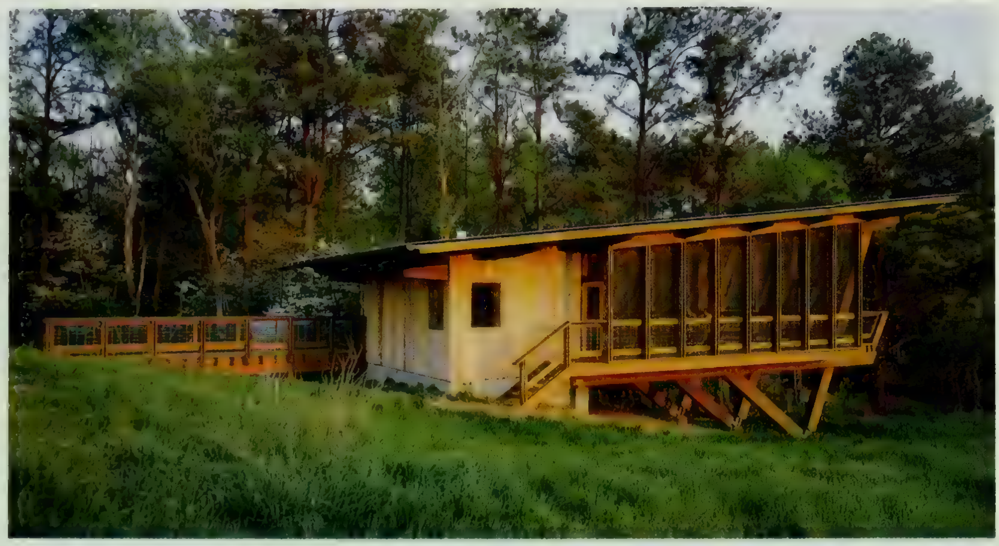
Solution

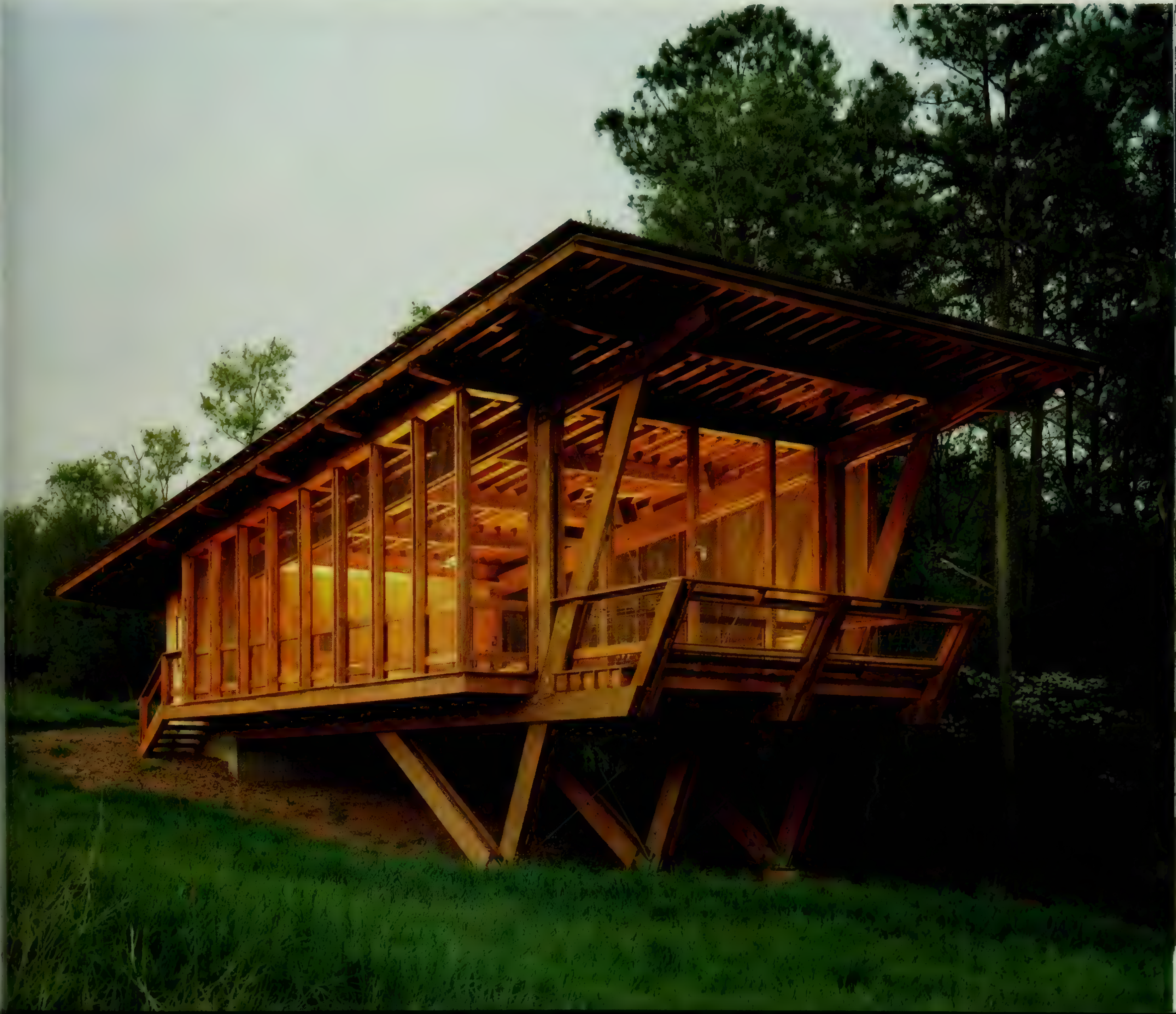
Though the region's densely forested, rolling hills may seem the antithesis of a prairie, Native American tribes and bison once roamed a savannah here. To restore the Piedmont Prairie, ecostation director Mary Ann Brittain has engaged volunteers to uproot nonindigenous plants and replace them with native species, reintroducing certain flowers, for example, to attract the insects favored by particular birds—all conscious measures to restore and enrich the biodiversity.

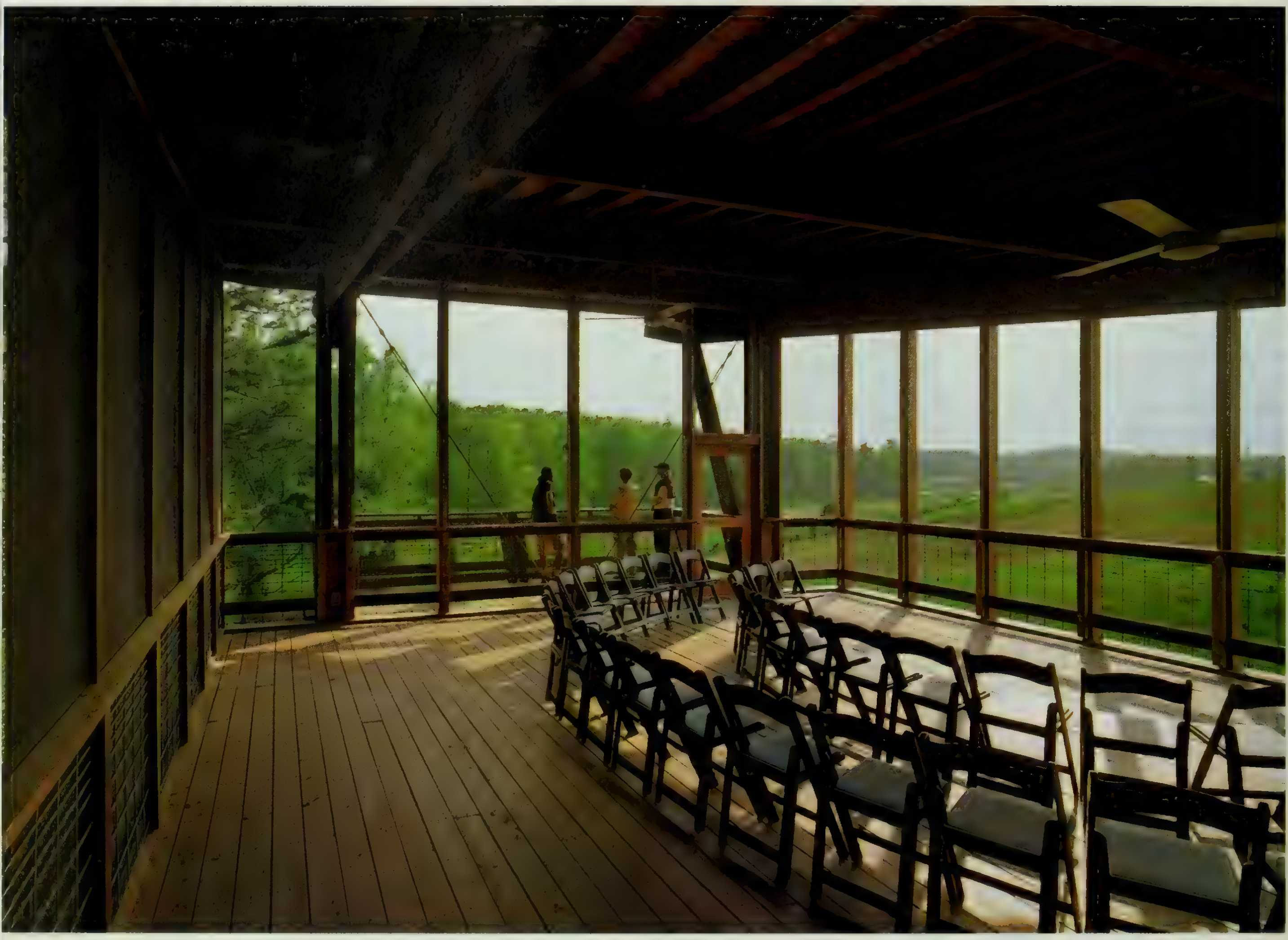


As Harmon realized, his building needed to be a teaching tool: a structure that would not only respond to this landscape, but also embody lessons about sustainability. Siting, orientation, forms, materials, and construction methods were all essential considerations. He positioned the Outdoor Classroom on a gentle slope

The structure sits lightly on the terrain, allowing the land to flow beneath it. The entry bridge extends past the cistern's galvanized-steel tank. The most opaque section of the building, its north end, houses two lavatories and a small office. Screened on three sides, the classroom catches southwesterly breezes. The deep south-facing overhang maximizes sun exposure in winter and shade in summer.

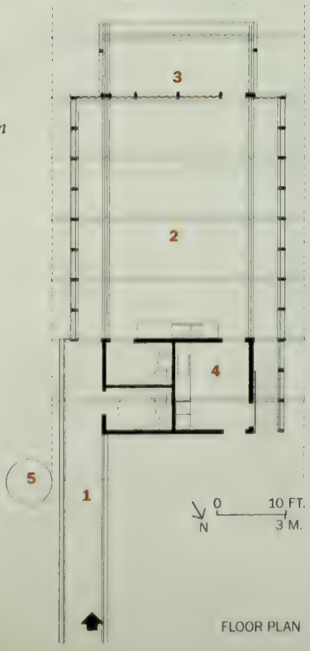




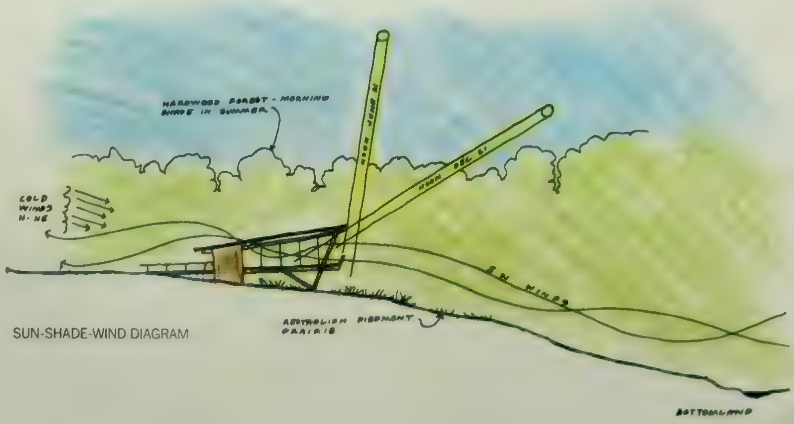


The classroom opens onto an open-air deck (above). To Harmon's delight, the deep eaves have already provided a welcome niche for a phoebe nest. His team calibrated the overhang for seasonal sun angles (below).

1. *Entry bridge*
2. *Classroom*
3. *Viewing balcony*
4. *Office*
5. *Rainwater cistern*



FLOOR PLAN


HARDWOOD FOREST - MORNING SHADE IN SUMMER
NOON JUNE 21
NOON DEC 21
COLD WINDS N-NE
SW WINDS
RESTORATION PIEDMONT PRAIRIE
BOTTOMLAND

SUN-SHADE-WIND DIAGRAM

to yield a range of views: bottomland, pine forest, meadow, hardwood forest, woodland fringe, and stream bank. As Brittain points out, "Edge conditions are the most biologically rich."

Perched like a tree house, the $300,000 structure sits lightly on the terrain, letting the land flow beneath it. Balanced visually, the roof's upward pitch mirrors the hill's downward slope. Much of the building rests on three triangular heavy-timber frames on a concrete pad.

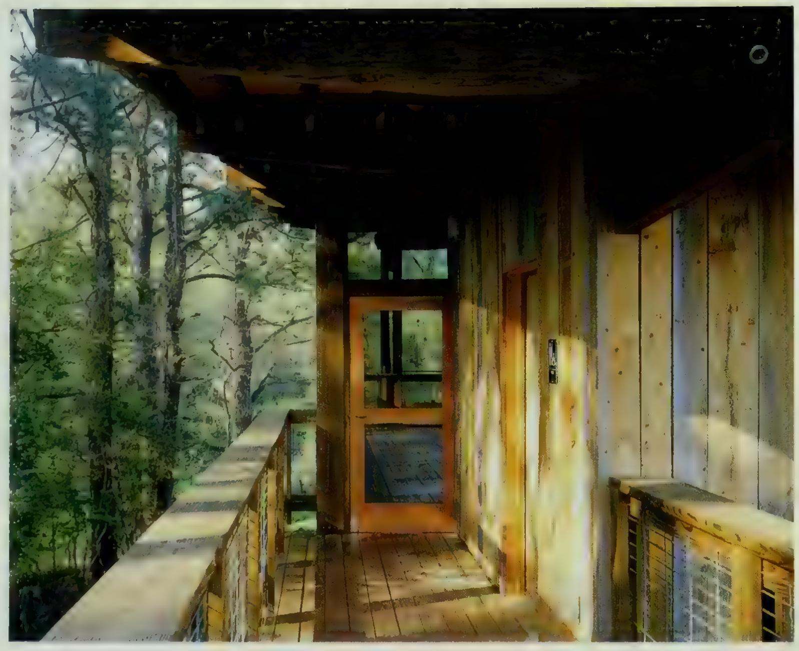
The structural lumber, indigenous southern yellow pine, is parallel strand, a composite (made of scrap pieces) favored for its strength, rot-resistance, and renewable attributes, diminishing the impact on old-growth forests. All siding and interior panels are of Atlantic white cedar from the Carolina swamps. With this entire wood-frame building dimensioned to reduce waste, the roof's plywood sheets, for instance, required no cutting. And to avoid erosion, the team disturbed as little earth as possible.

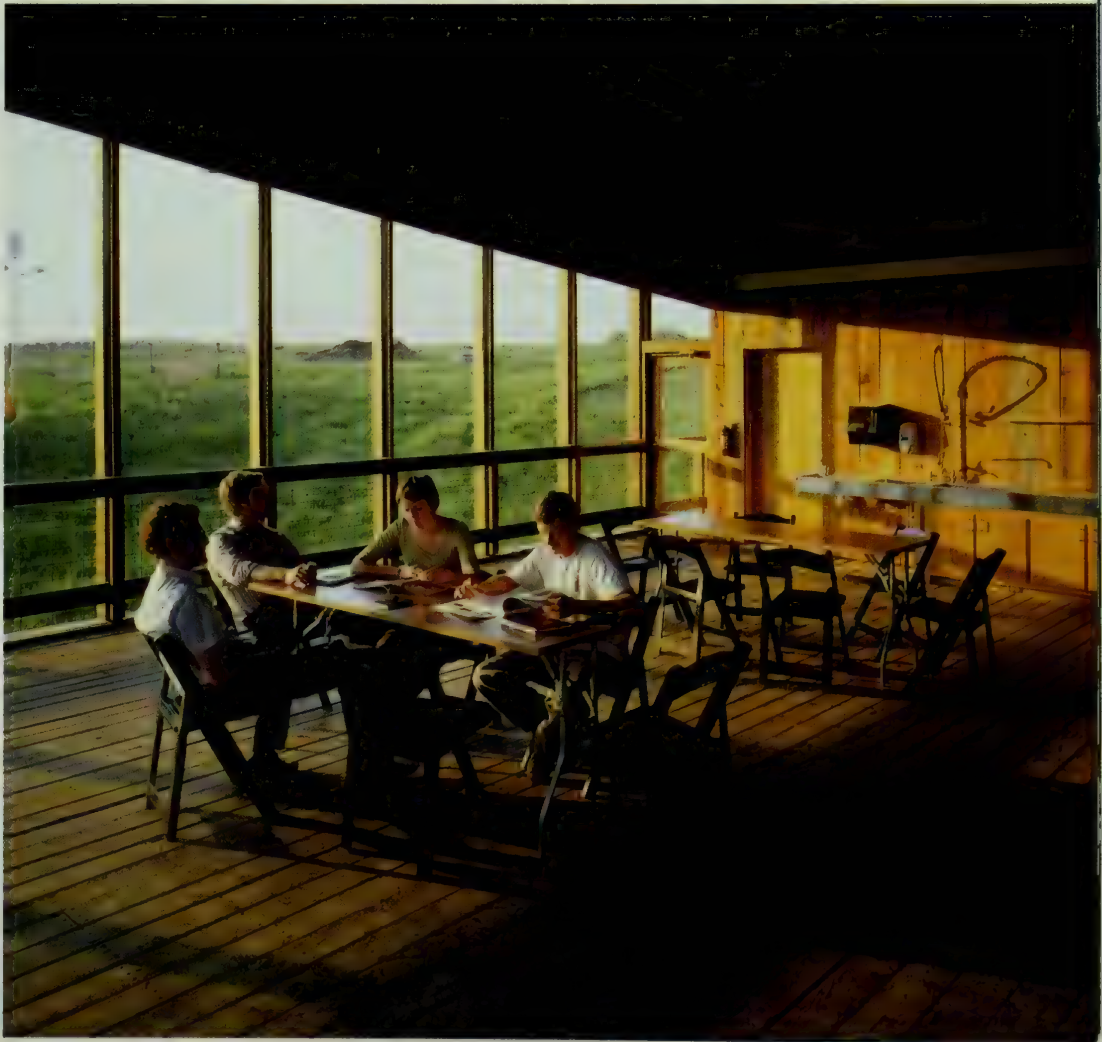
Screened in on three sides, the classroom catches southwesterly breezes all year. Its deep south-facing overhang maximizes sun exposure in winter and shade in summer.

Nearly everything about this rustic, unpretentious building appears in full view—joints, lumber members, and for the bathroom, a cistern with a pipe from the roof gutter—all forming part of the overall composition. Soon, photovoltaic panels, set in a field, will take Prairie Ridge off the grid.

Commentary

Just as the new building will season over time, gradually turning silvery gray, the whole ecostation basks in a constant state of flux. The interstate still appears in the vistas from this bucolic perch, but sycamore trees will eventually form a visual buffer. The Outdoor Classroom provides a remarkably comfortable space, like a ship's deck projecting into the landscape. "One of my missions," says Harmon, "is to get people out of their air-conditioned cocoons." As Prairie Ridge's immediate popularity suggests, he has already helped draw people out to peer into cocoons in the wild. ■





The entryway (left) evokes a suspended rope bridge in the forest. The heavy-gauge steel mesh beneath the rails is recycled "hog slats," common on pig farms. The mild climate keeps the classroom comfortable, even in winter and late afternoon (below).

Two: HENRY A. WALLACE VISITOR AND EDUCATION CENTER

Hyde Park, New York

R.M. Kliment & Frances Halsband create an airy gateway center that invites visitors to explore the historic FDR Presidential Library.

By James Murdock

Architect: *R.M. Kliment & Frances Halsband Architects*
Client: *U.S. National Archives and Records Administration*
Consultants: *Matrix New World Engineering (civil); Robert Silman Associates (structural); AltieriSeborWieber Consulting Engineers (m/e/p); Andropogon Associates (landscape); Brandston Partnership (lighting); Shen Milsom & Wilke (a/v); Heery International (construction manager); Chermayeff & Geismar Associates (exhibits); Kroll Schiff & Associates (security); Studio Pacifica (accessibility); James R. Gainfort Consulting Architects (building environment); Clough Harbour & Associates (traffic); Jeanne Giordano (retail)*

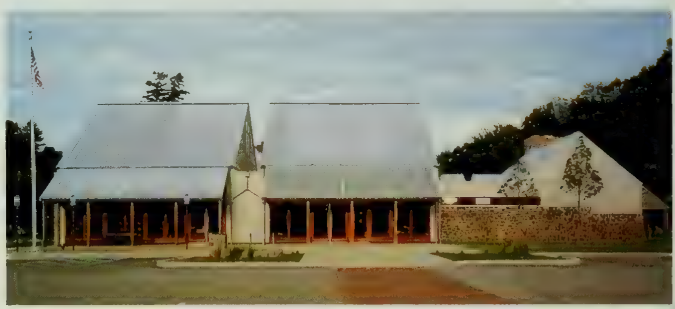
Size: *50,000 square feet*
Cost: *$14 million*
Completion date: *November 2003*

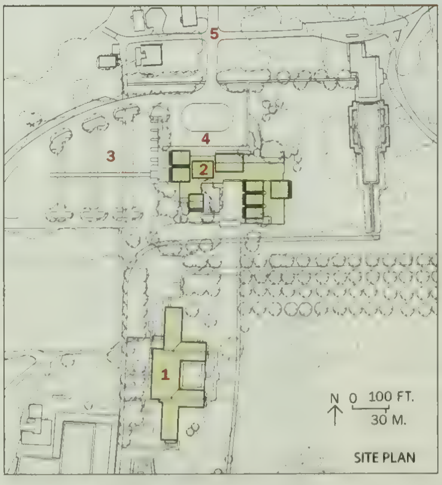
Sources
Masonry: *Sucato Builders*
Copper roofing: *C. Verone Roofing*
Windows and doors: *Reilly WoodWorks*
Skylights: *Fiore Skylights*
Glazing: *Technical Glass Products*
Hardware: *Dorma; Stanley*
Acoustical panels: *Decoustics; United Steel Products*
Fixed seating: *Irwin*
Lighting: *Lightolier; LSI; BEGA*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

Of our presidents, Thomas Jefferson was not alone in having something of the architect in him. Franklin D. Roosevelt sketched the basic design for his presidential library in 1938, a Dutch Colonial–style building on the grounds of his family estate in Hyde Park, New York. His notes indicate that he wanted its fieldstone walls to express endurance and determination. These are important qualities to convey during times of global conflict, and they also befit an archive, but they can preclude hospitality.

More than just archives, presidential libraries fill a civic role: They serve as pilgrimage sites for the politically faithful and often house education centers and conference facilities. Though it was the first such institution, the FDR Presidential Library and Museum serves all these functions. In addition to the researchers who access its 17 million pages of documents, more than 125,000 people visit annually to see the exhibits, such as Roosevelt's touring car and the study from which he broadcast several fireside chats.





The Wallace Center, with its handsome main entry (above), serves as a gateway, greeting visitors to the FDR library complex.

1. *FDR library*
2. *Visitor center*
3. *Main parking*
4. *Tour-group entry*
5. *New driveway*

Program

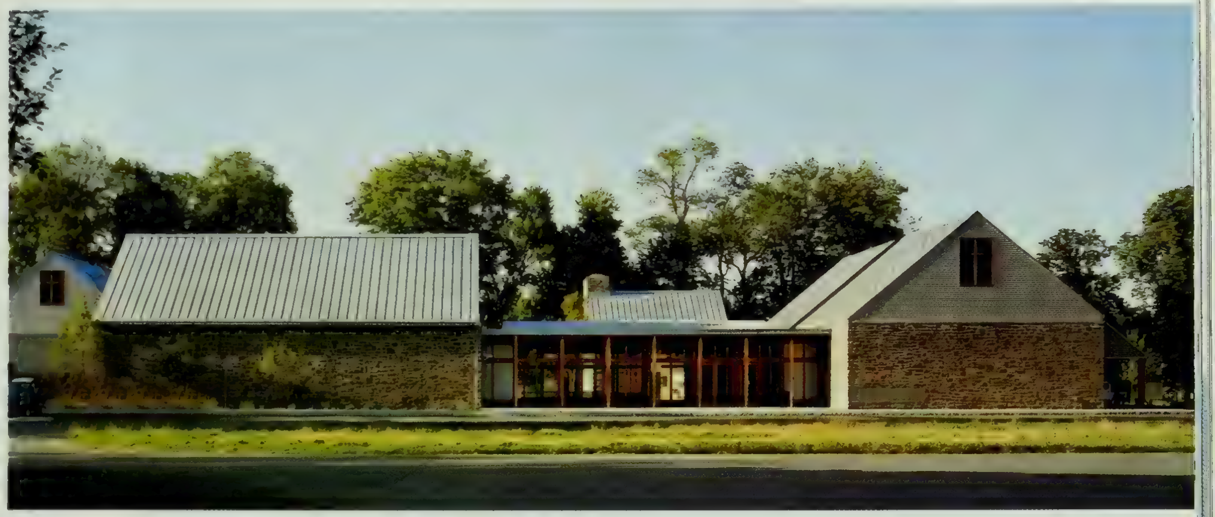
The FDR library, which is run by the National Archives and Records Administration, forms part of a larger historic site, owned by the National Park Service, that includes the Roosevelt family home as well as the president and Mrs. Roosevelt's grave sites. Visitors used to access the 290-acre property via a 1940s-era driveway that led to a ticket booth in an unsheltered parking lot.

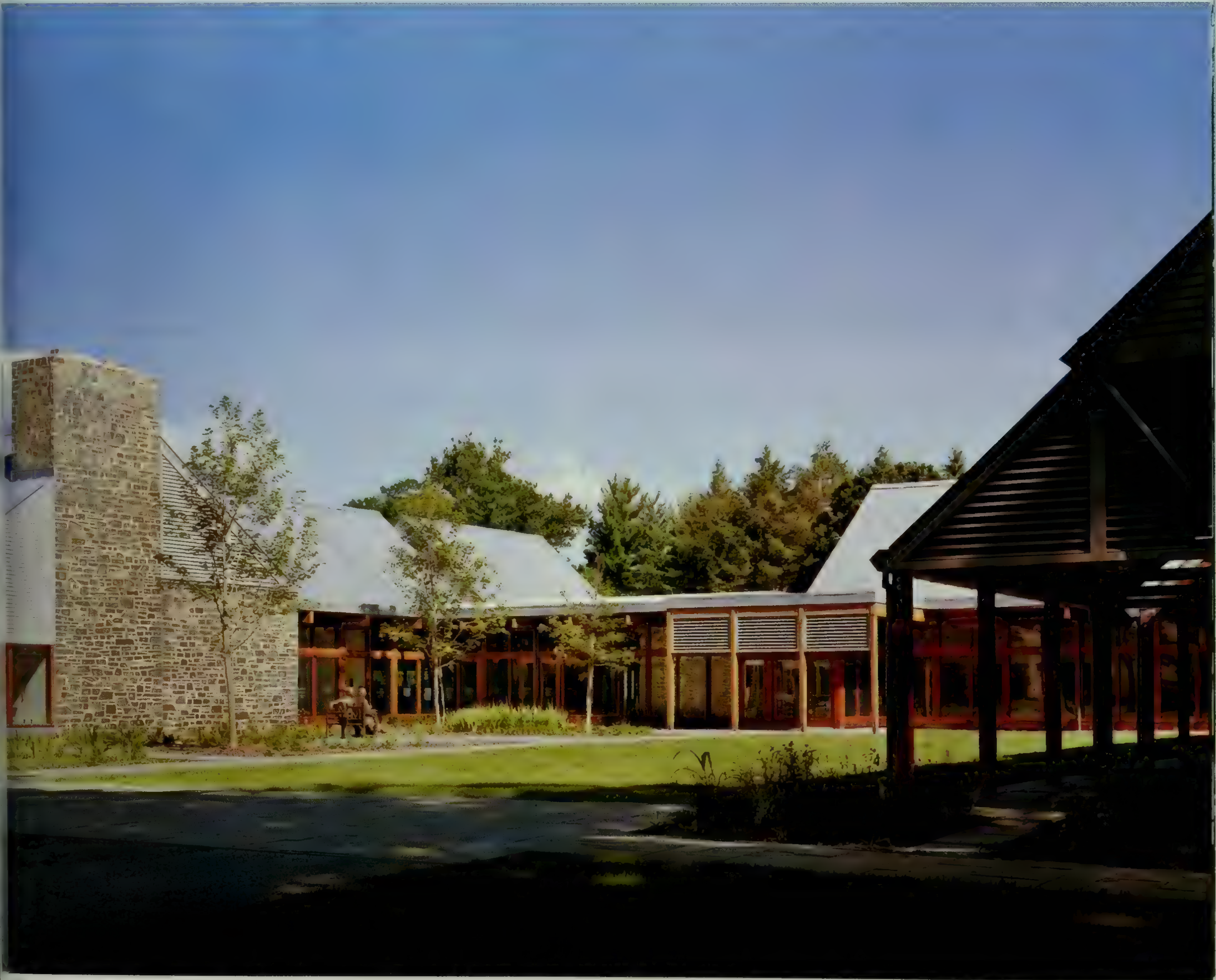
In addition to replacing this outmoded, rather undignified entry, the clients wanted a new interpretive space where they could present historical background on Roosevelt and his era. Also, the library's directors sought larger offices for themselves and a dedicated conference center.

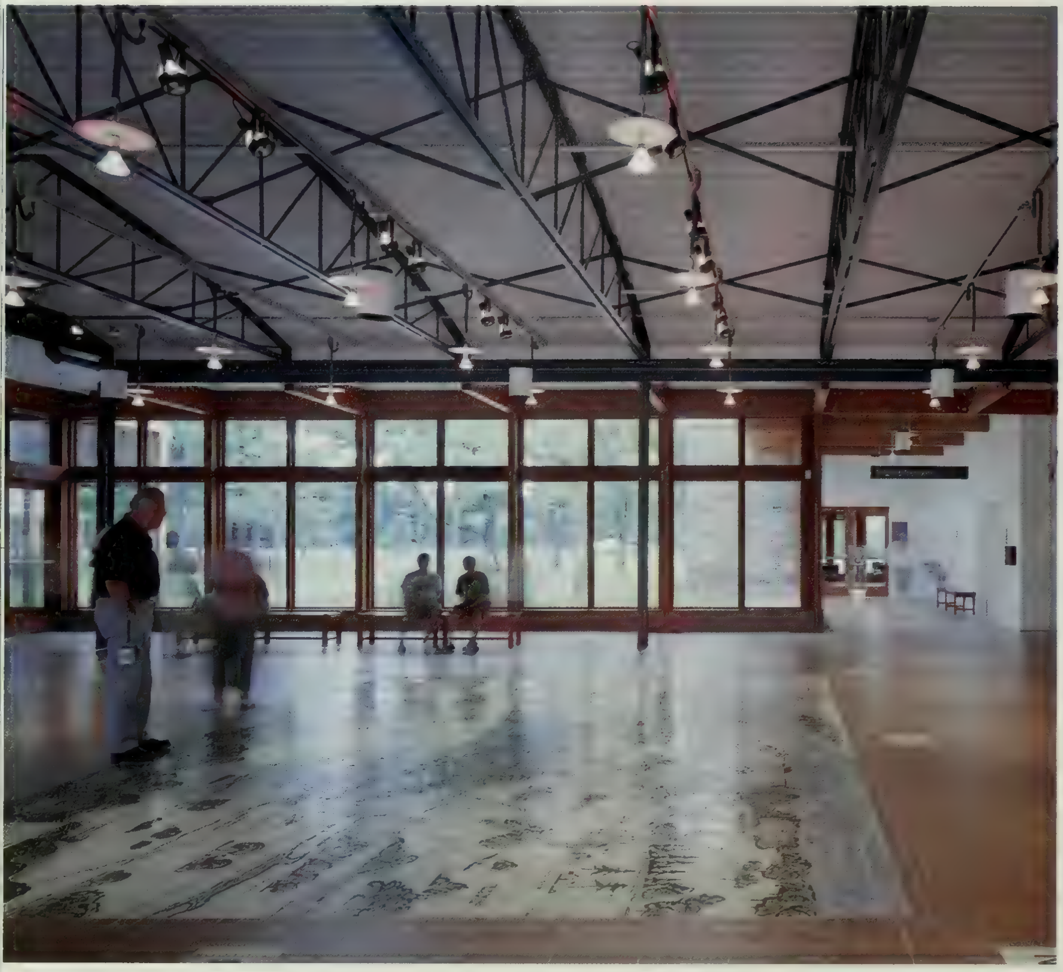
Roosevelt envisioned his library as the cornerstone of a larger campus—it had already been expanded once, in the 1960s, based on sketches he made before his death—but when its directors contemplated adding the Henry A. Wallace Visitor and Education Center, in the mid-1990s, the Park Service insisted that any new construction interfere as little as possible with the historic site.

Based in New York, James Murdock writes about architecture and real estate.

Entering the Roosevelt site from the north, via a newly constructed driveway, visitors first encounter an entrance intended for large tour groups (right). An inner courtyard faces south toward the FDR library (below). Although some walls are clad in fieldstone—a nod to Roosevelt—steel posts and beams compose the building's primary structural system.

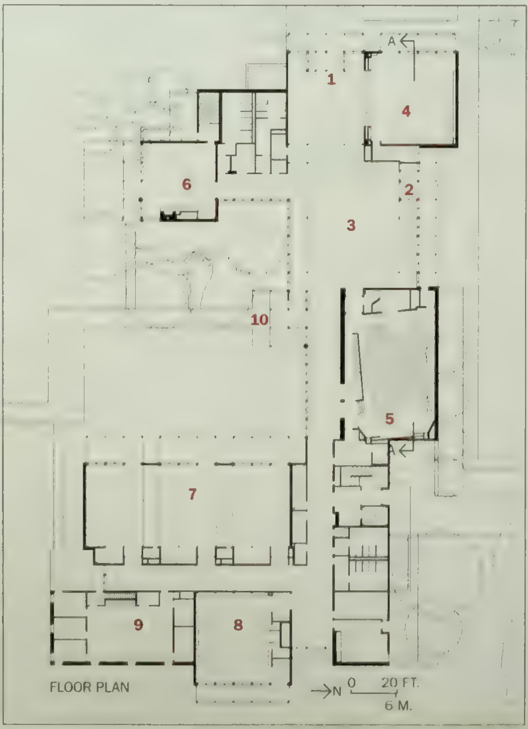






A tile mosaic, embedded in the orientation lobby's floor, depicts a 1940s-era map of the site (above). This central room features glass curtain walls that flood the space with daylight and allow views of the FDR library beyond.

1. *Main entry*
2. *Tour-group entry*
3. *Orientation lobby*
4. *Gift shop*
5. *Auditorium*
6. *Café*
7. *Multipurpose room*
8. *Conference room*
9. *Administrative offices*
10. *Exit to FDR Library*



Solution

Manhattan-based R.M. Kliment & Frances Halsband Architects got the commission after the Park Service had vetoed an earlier scheme by another firm. But just as construction documents were to be submitted for the planned building on the site of the parking lot and ticket booth, the Park Service discovered that this spot had once been the Roosevelt family's vegetable garden.

For their second attempt, Kliment and Halsband located the 50,000-square-foot visitor's center roughly 100 yards north on land that was formerly part of a neighboring estate. They designed a village of small buildings with steep gabled roofs, organized into a squared-off C shape that opens toward the library. Paying homage to Roosevelt, they clad these structures in locally quarried fieldstone and added porches along most facades.

Visitors enter the Wallace Center through its main doorway on the western elevation, or through a separate tour-group entry to the north. Passing by a gift shop and a café, they arrive at the orientation lobby, a pavilionlike structure whose glass curtain walls allow unobstructed views of the site. Embedded in the floor is a tile mosaic depicting a 1940s-era map of the region. To the south, doors lead to the courtyard and library beyond; to the east is an auditorium as well as a glazed corridor that connects to a wing containing offices and the conference center.

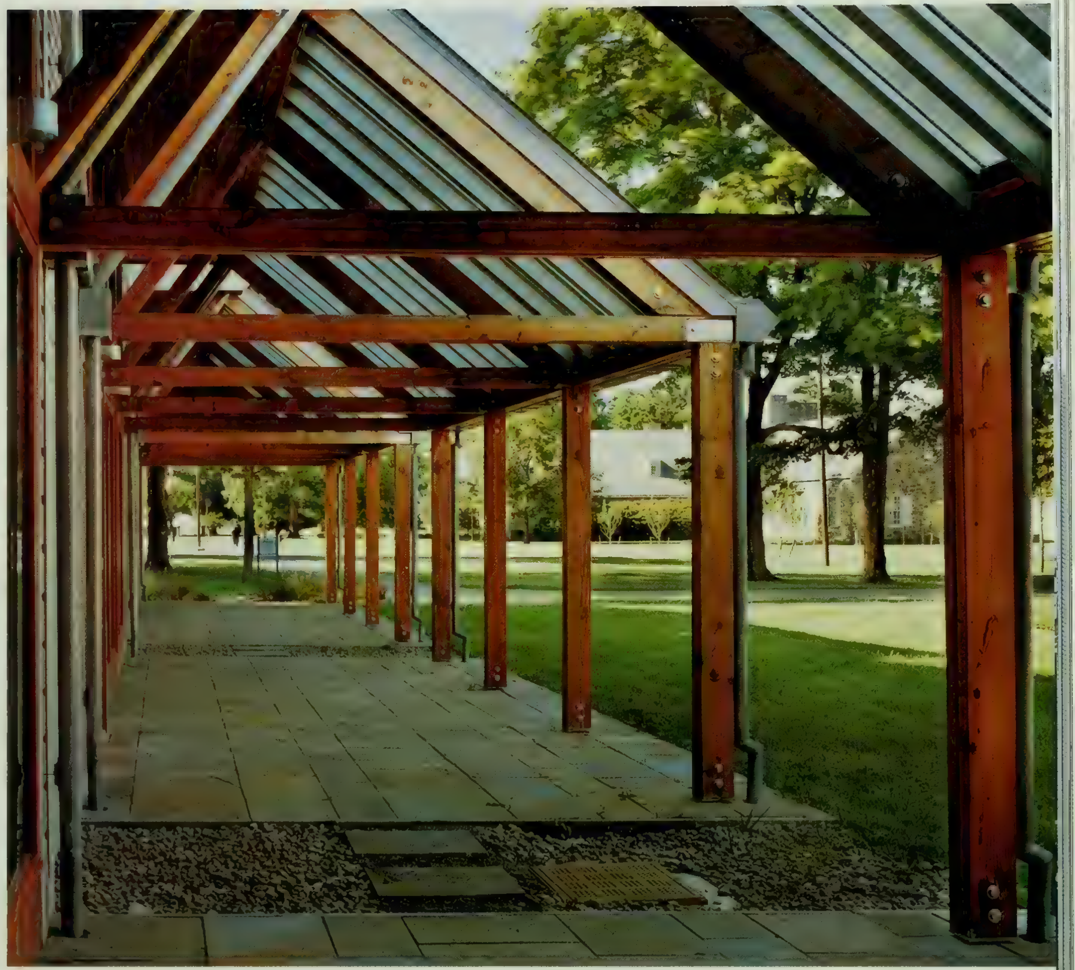
All of the Wallace Center's public spaces are located on grade, making them fully wheelchair accessible. And, although it's uncertified, the building qualifies for a LEED Silver rating—largely thanks to its ample use of daylight. Most rooms feature at least one glass curtain wall; and even though porches extend along many elevations, the architects chose to shelter them with a transparent roof system comprising two layers of glass that sandwich a fine metal mesh, allowing plenty of light indoors.

Commentary

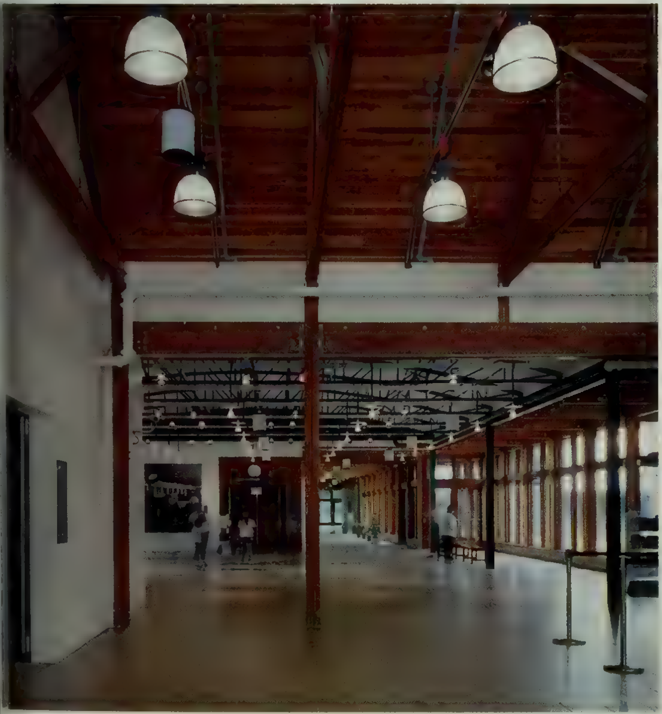
Robert Kliment and Frances Halsband employ just enough of

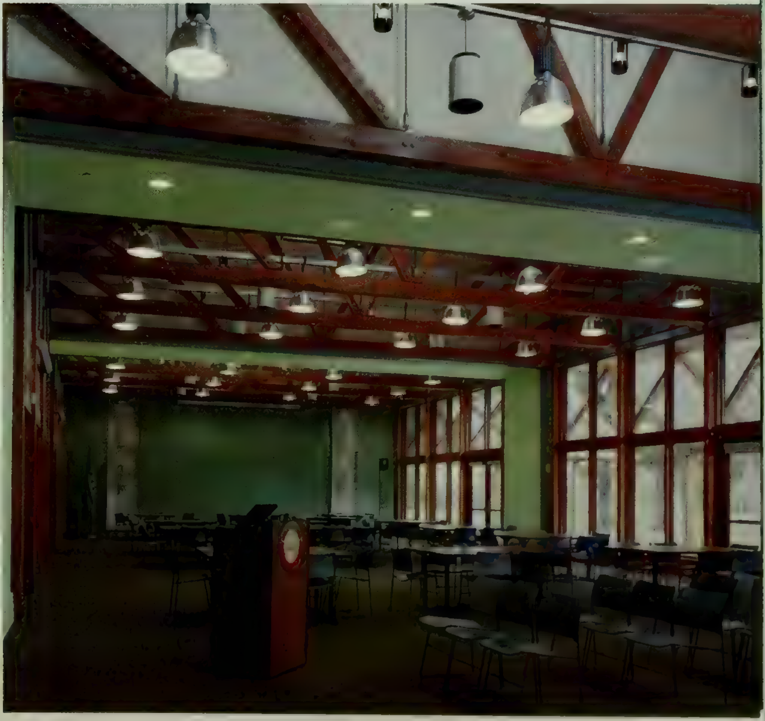
Roosevelt's design vocabulary to blend their building seamlessly into its context. But where the historic library feels dark and cramped, the new Wallace Center is open and airy—a perfect foil for the older building. It's also an excellent gateway. The building's generous fenestration and long porches draw the eye outward, orienting visitors and inviting them to explore the landscape beyond.

Most important, perhaps, the Wallace Center reinforces this institution's original intent. As Roosevelt said at the site's opening ceremony in 1941, presidential libraries are deeply democratic institutions: Embodying the ideals of open government, they allow the general public to inspect a chief executive's papers and question his decisions. Particularly in an age of increasing security provisions, it is critical that these civic buildings convey such openness. Kliment and Halsband, acutely aware of this, couldn't have done it better. ■



Most roof supports are exposed, as in the entry (below left), and in the 5,000-square-foot meeting room (below right), giving the spaces an airy quality. Porches feature translucent roofs (right).





Three: WARREN SKAAREN ENVIRONMENTAL CENTER

Round Mountain, Texas

Robert Jackson and Michael McElhaney tread lightly on the fragile Westcave Preserve with a center featuring environmental-science exhibits.

By Ingrid Spencer

Architect: *Robert Jackson & Michael McElhaney Architects*
Clients: *Westcave Preserve Corporation; Lower Colorado River Authority*
Consultants: *Architectural Engineers Collaborative (structural); Johnson Consulting Engineers (m/e/p); Jill Nokes Landscape Design (landscape); Meridian Energy Systems (solar exhibit); Drew Patterson Studios (outdoor exhibit panels); Tejas Engineering (wetlands design); D.L. Bandy Constructors (general contractor)*

Size: *3,030 square feet*
Cost: *$1.2 million*
Completion date: *March 2003*

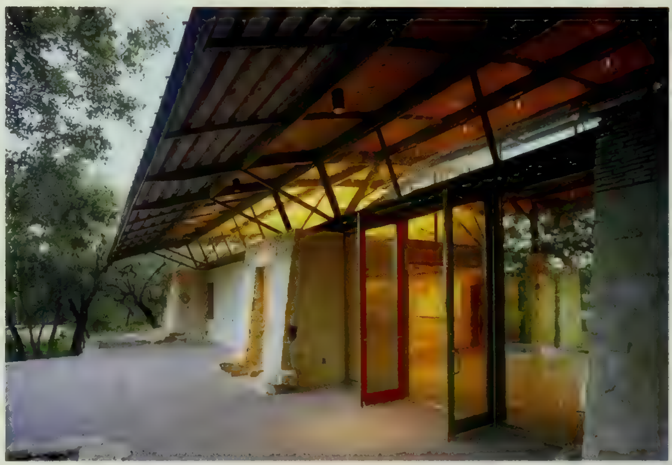
Sources
Stone: *San Jacinto Materials*
Metal roofing: *MBCI*
Windows: *Columbia Commercial Building Products*
Doors: *Nana Wall Systems*
Terrazzo floors: *Venice Art Terrazzo*
Composting toilet: *Clivus Multrum*
Rainwater-collection system: *Amiad Filtration Systems; Atlantic Ultravoilet*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

"We started out with a chair under a tree," says John Ahrns, manager of the Westcave Preserve, a 30-acre nature sanctuary located 50 miles southwest of Austin, Texas. Today, 33 years after Ahrns arrived, that chair has grown into the Warren Skaaren Environmental Learning Center, a 3,030-square-foot classroom designed by Austin-based architects Robert Jackson, AIA, and Michael McElhaney, AIA. The center integrates green building technologies and exhibits that illustrate and demystify natural science.

Program

After decades of visitor traffic, Jackson explains, the Westcave Preserve "was being loved to death." In a canyon at the heart of the property, hikers inadvertently trampled delicate plants and polluted a grotto at the base of a 40-foot waterfall. The Westcave Preserve Corporation approached the architects to design a building for the canyon's trailhead. With the goal of reducing human impact on the site, the group wanted both an educational facility to serve the 10,000 school children who visit Westcave annually as well as a headquarters for the preserve's managers. The architects saw an opportunity to highlight conservation by using sustainable materials that blend unobtrusively with the landscape.



Clerestory windows create the illusion that the roof hovers above the walls (above). Deep overhangs shelter 2,000 square feet of porch space, as at the southeast corner (opposite).

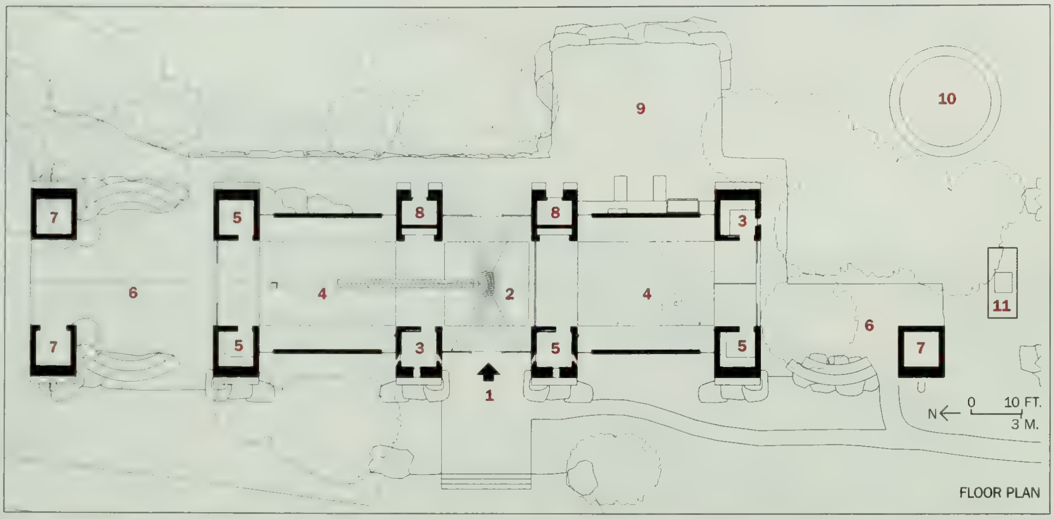
Solution

Choosing an exact location for the new center proved challenging. While the canyon itself is lush, the surrounding area is rocky and rugged, leaving few places capable of accommodating a single-story structure with grade-level entrances. Only one site worked, but it meant creating a narrow building whose longest sides face east and west—not the typical orientation for green design. But as Jackson observes, "You can't always go by the rules. What is most important is to listen to the site. Had we oriented the building the other way, it would have been 8 feet off the ground. We needed to make the indoors and outdoors a continuous learning space."

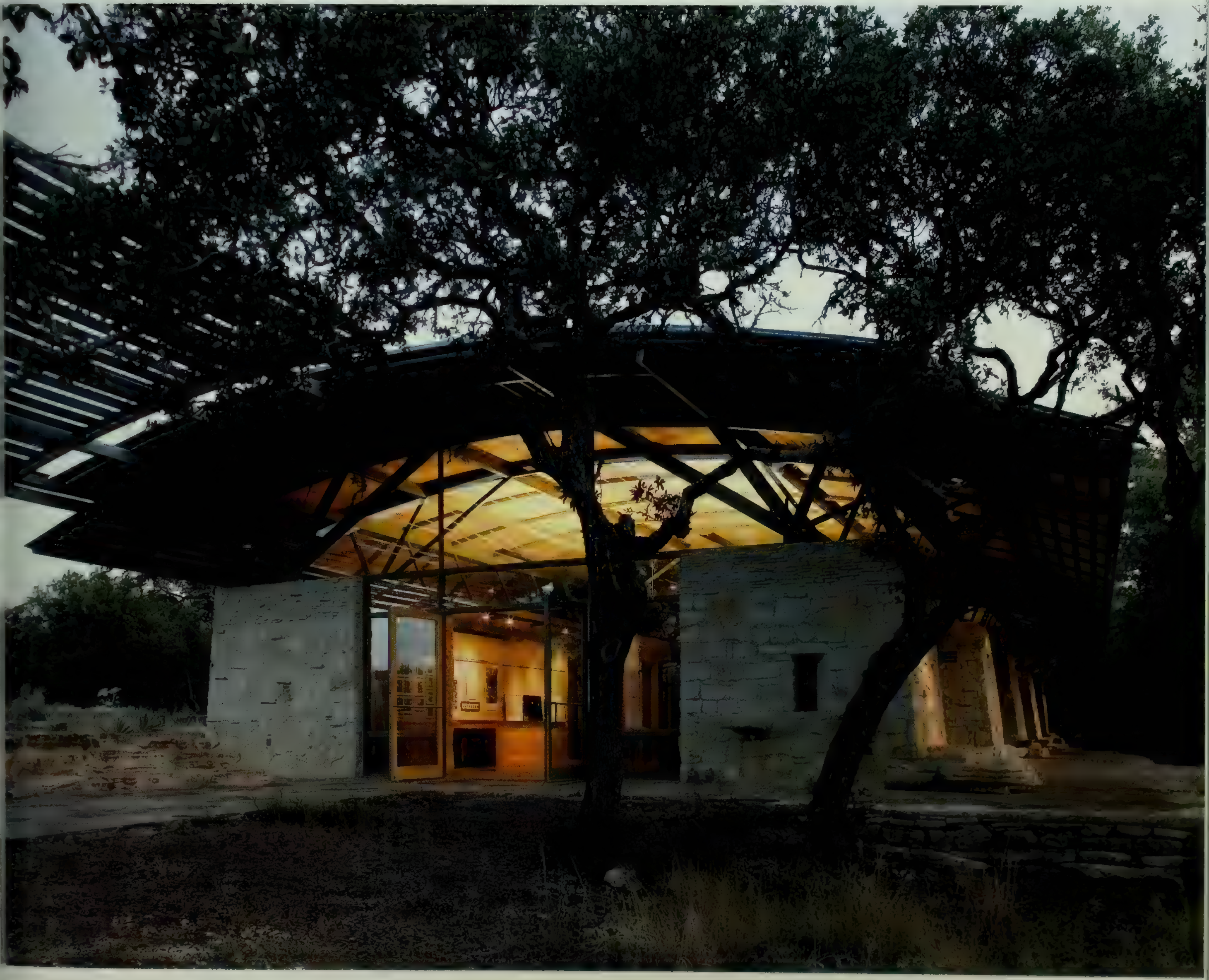
Locally quarried Glenrose stone blocks, peppered with fossils and iron tinctures, form the building's walls.

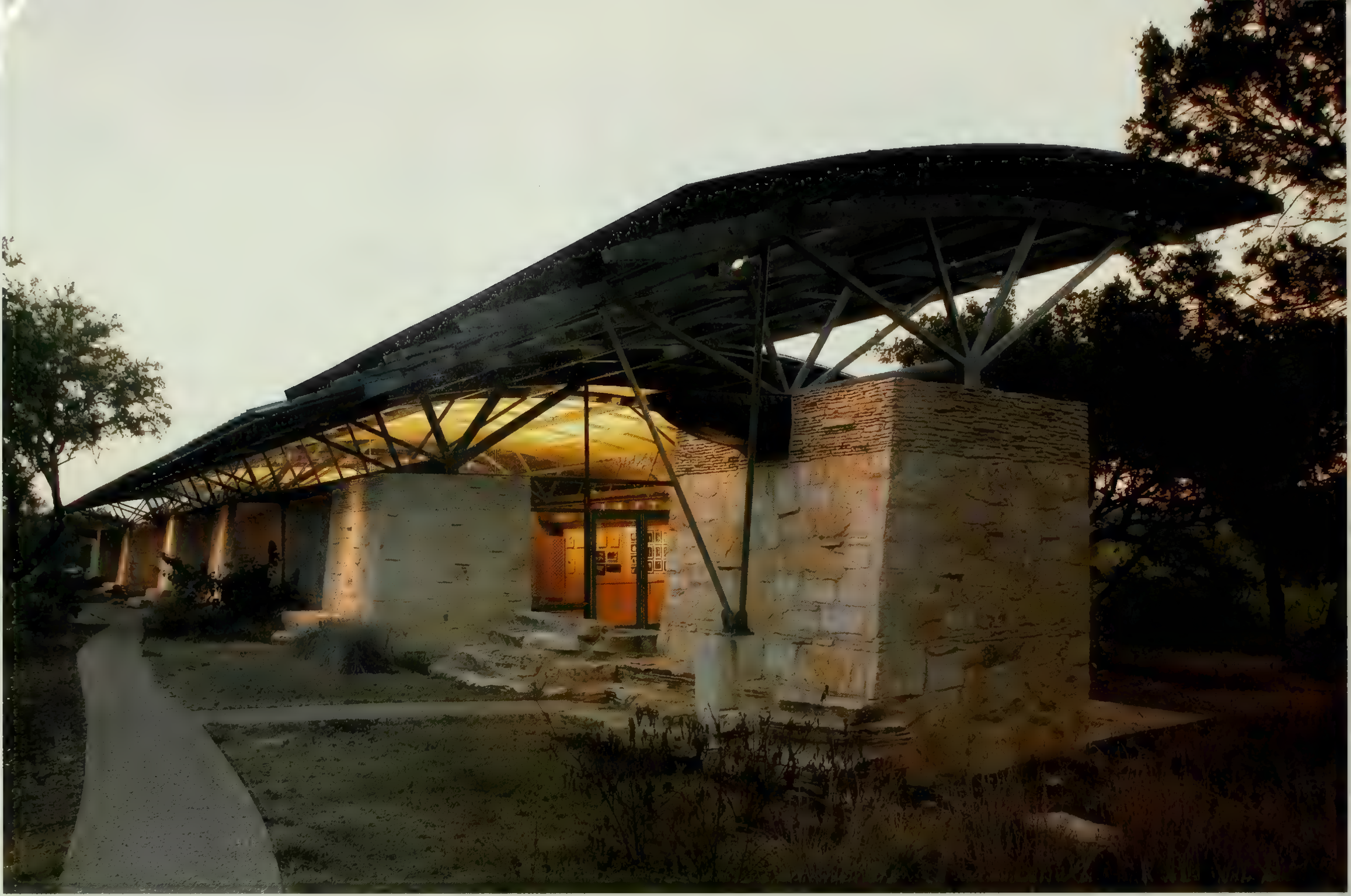
The architects selected a finish of uncoated cement-lime stucco, backed by recycled-content cellulose insulation. A curved, metal standing-seam roof seems to hover above the building due to a band of clerestory windows beneath it that admits light into the building. Eight-foot overhangs shelter 2,000 square feet of extra outdoor classroom space.

A freestanding, 1,700-watt photovoltaic panel near the south elevation generates a substantial amount of energy—more, sometimes, than the building needs to operate—and it functions as one of the learning center's educational



1. *Main entry*
2. *Orientation room with "sky map"*
3. *Office*
4. *Classroom*
5. *Storage*
6. *Covered porch*
7. *Water-collection cistern*
8. *Mechanical*
9. *Terrace*
10. *Wildlife cistern*
11. *Photovoltaic panel*





A stone pier at the southwest corner contains one of the center's three rainwater-collection cisterns (above).

Unfinished tongue-and-groove pine boards clad the underside of the curved, metal standing-seam roof (below).

tools. Kids enjoy watching numbers on the data readouts as Westcave's guides demonstrate how the unit sends power back to the electricity grid. Additional green elements include a ground-source, water-chilled heat pump; three rainwater-collecting cisterns; high-efficiency uplighting; and composting toilets (housed in a separate structure).

Like the photovoltaic system, most of the center's educational exhibits stem from and are integrated into its design. A "sky map" embedded in the terrazzo floor of the main orientation room illustrates Earth's relationship to the sun. Modeled after a 300-year-old observatory at the Santa Maria degli Angeli basilica in Rome, this exhibit employs a glazed aperture in the ceiling that allows a ray of sunlight to shine on a narrow metal plate notched with the days of the year. As the sunbeam moves across the plate, its angle gradually shifts each day and marks the passing of seasons.

Commentary

Blending easily with the rugged landscape, the elegantly constructed Warren Skaaren Environmental Learning Center serves as a low-profile gateway to the splendor of Westcave Preserve. A winner of the AIA-COTE Top Ten Green Projects in 2006, it demonstrates how regional materials, simple forms, and sustainable technologies can help connect the dots between people and their environment. This "wilderness classroom" seems to have sprung naturally from its site—an effect easier to envision than to achieve. ■

Interior window-wall systems allow daylight to penetrate through the entire building, reducing the need for artificial lighting (below). Educational exhibits are integrated into the building's finishes. Metal panels embedded in the fieldstone floor are etched with the Fibonacci Series, known as nature's numbers.

Four: OLD LAS VEGAS MORMON FORT VISITOR CENTER

Las Vegas, Nevada

Assemblage Studio draws on a pioneer heritage to infuse a small museum with subtle exuberance.

By David Sokol

Architect: *Assemblage Studio—Eric Strain, AIA, principal in charge; Andrew Gregory, Clemente Circoria, Adrian Jones; Douglas Schneider*
Clients: *Nevada Public Works Board; Nevada Division of State Parks*
Consultants: *Mendenhall Smith (structural); TJK Consulting Engineers (electrical); Petty Engineering (m/p); MLA and Assemblage Studio (landscape); Consortium West (exhibition designer); MGM Construction (general contractor)*

Size: *5,000 square feet*
Cost: *$1.6 million*
Completion date: *May 2005*

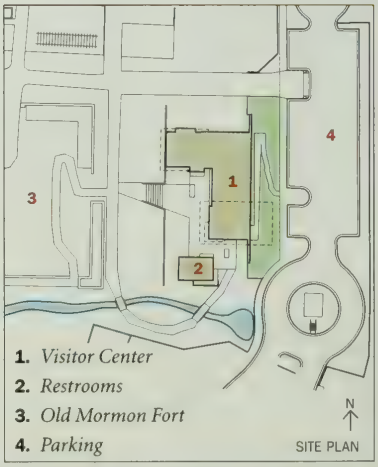
Sources
Masonry: *Hanlon Brothers Masonry*
Metal paneling: *Noorda*
Elastomeric roofing: *Clarks Quality Roofing*
Windows and glazing: *Mollerup Glass*
Doors and hardware: *The Hallgren Company*
Cabinets and hardware: *Hurco*
Lighting and controls: *Electrend*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

The Old Las Vegas Mormon Fort Visitor Center lies just a few miles north along Las Vegas Boulevard from the Strip, but that's where the commonalities end. This museum, devoted to the region's history, measures a mere 5,000 square feet. Except for a few historic neon signs on exhibit, it displays none of the ostentation of casino culture—instead possessing a quieter, handmade sensibility. "It's a definite contrast to glitz and glamour," says Eric Strain, AIA, principal of Assemblage Studio.

Program

Located in Vegas's sleepy cultural corridor, which includes the Antoine Predock–designed Las Vegas Library just across the street, the visitor center sits shoehorned between its namesake and a parking lot. In 1855, Mormon missionaries erected a 150-foot-square adobe fort nearby on a slight plateau above a creek. Only its southeast wall remains.



SITE PLAN

Assemblage was little more than a year old when Nevada's Division of State Parks and Public Works Board issued an RFQ for the visitor center in 1999, part of a larger master plan to excavate the fort and restore it. As Strain recalls, "All I had to show for my qualifications was my thesis project"—a proposal, coincidentally, he made in 1990 for a museum on the same site. The state appreciated his grasp of historical relevance and took a chance on commissioning him. In addition to designing 2,500 square feet of exhibition space for interpreting the fort and local history, the program included a gift shop, a library, a video screening room, and a large area for school children to congregate.

Solution

Assemblage drew inspiration from the fort and the pioneer heritage it represents. Outside the visitor center's main, eastern elevation, a pathway switches back through rows of ornamental grass like a handcart trail. This

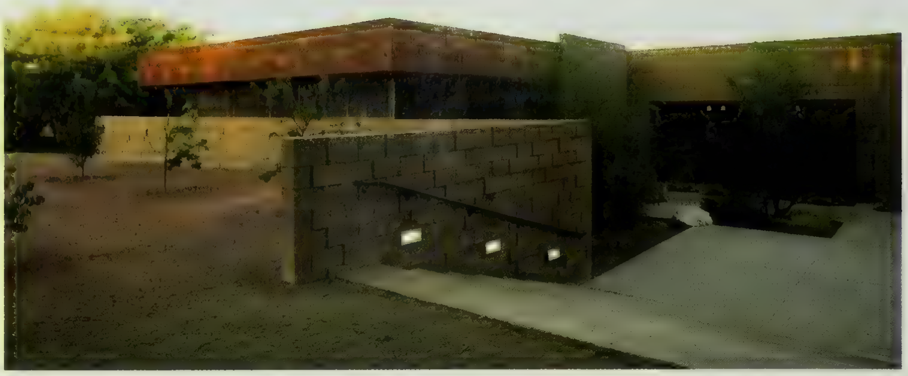
PHOTOGRAPHY: © DAVE BASSETT

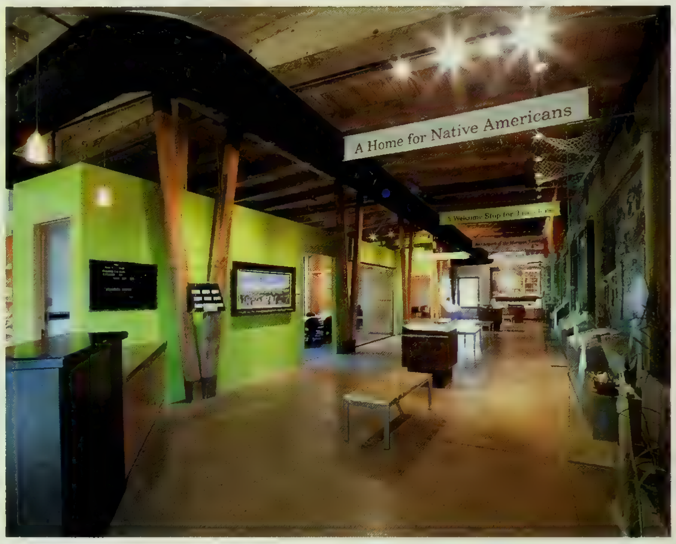
Capping the entrance volume (below), a butterfly-shaped roof, clad in rusted steel panels, echoes the shape of a nearby mountain pass. An inner courtyard (right) faces the Old Mormon Fort. CMU blocks and poured-in-place concrete compose the building's walls; pine timber beams support the roof.

trek ends at an entrance volume, a chunky wedge of acid-rusted steel that holds up a butterfly roof.

The entrance wall extends beyond the main building's L-shaped footprint, hinting that it is perhaps following a preexisting protective barrier. Restrooms occupy a separate structure just south of the entry, guarding it like a bastion. Inside the main building, a reception desk and gift shop greet visitors. An enclosed volume, painted a luminescent green, stretches away from the entry and contains offices as well as the library. Galleries span the length of this enclosure and, turning the corner, end in a temporary exhibition space with an exit to the courtyard, where a stair leads to the historic fort beyond.

The project's $1.6 million budget precluded constructing a large indoor lecture hall, so Assemblage instead widened the stair to create an outdoor amphitheater. The designers cleverly ran return air from the air-conditioning system into a swamp cooler that pumps a refreshing breeze into the court.





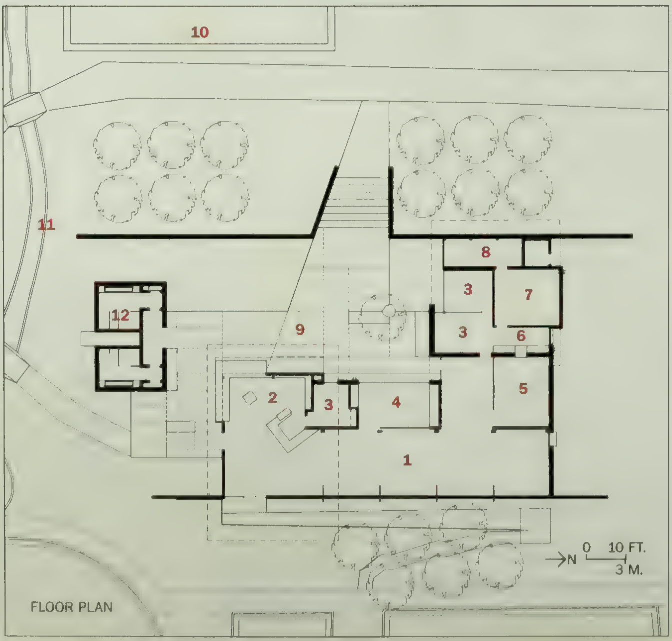
Perforated steel walls enclose the mechanical room, allowing a swamp cooler to pump a refreshing breeze into an outdoor courtyard and stair that double as classroom space (above). An inner set of rooms, containing administrative offices and a library, feature bright green walls (left). Galleries run parallel and culminate in a temporary exhibition space.

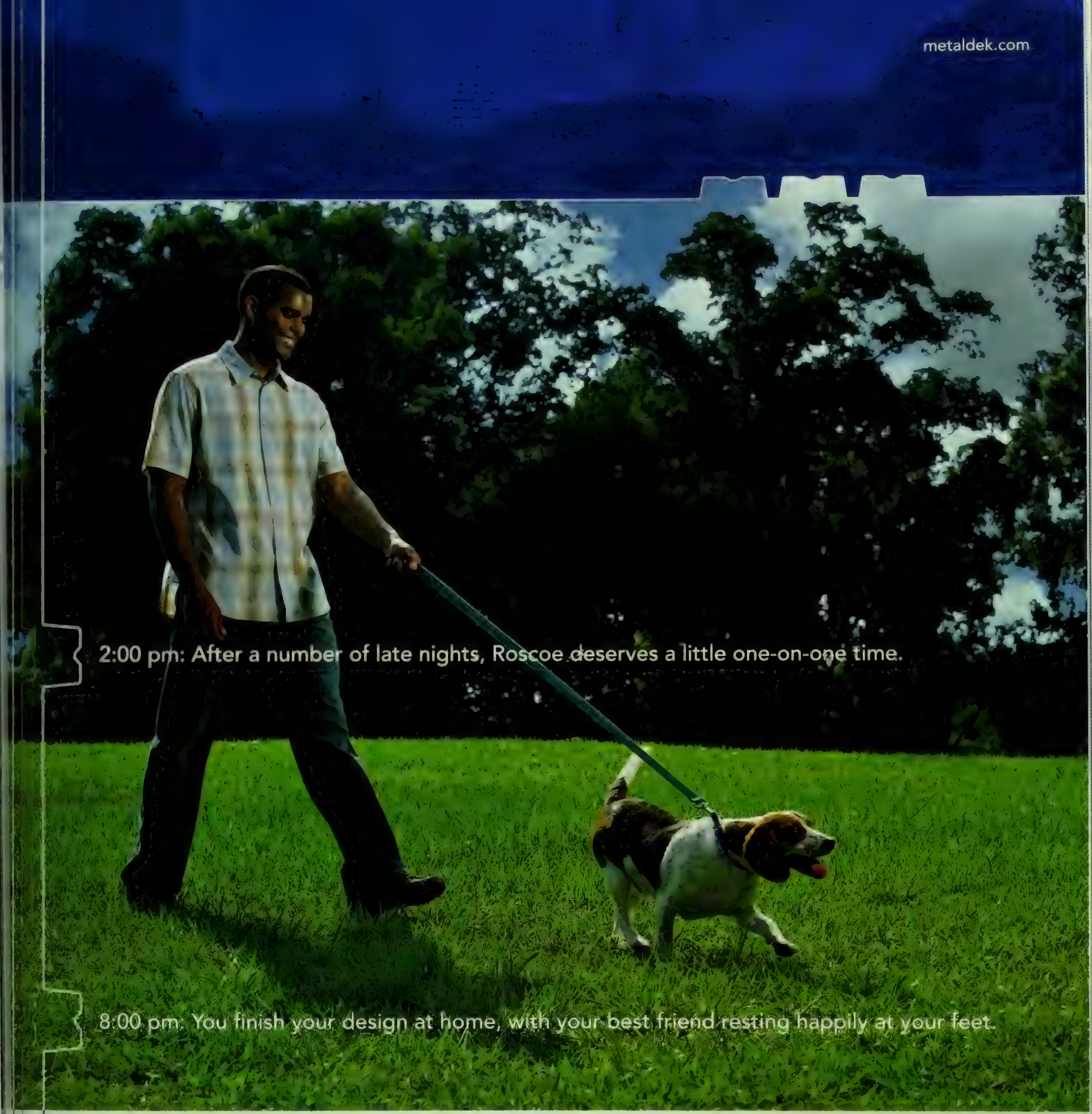
Commentary

When Assemblage completed its plan for this project in 2001, the design represented a departure for Strain, who had gained local notoriety for using vibrant colors that pay homage to the Mexican architect Luis Barragán. While the bright green interior wall is characteristic of Strain, this building's exuberance stems more subtly from its eclectic material palette, which includes sandblasted glass and pine timbers. Strain also seems to have drawn inspiration from Predock's library—evidenced by the chunky entrance, which aspires to the monumentality of its neighbor.

Rising construction costs forced Assemblage to omit additional elements, such as a "lookout platform" above the restrooms. Strain says it can be easily built in the future. It would be a welcome addition. For now, smallness might be this project's biggest liability. Collapsing the pioneer narrative into such a tiny container feels unresolved without the counterpoint that only open spaces, like an observation deck, can provide. ■

1. *Exhibition space*
2. *Gift shop*
3. *Office*
4. *Library*
5. *Media room*
6. *Work room*
7. *Storage*
8. *Mechanical*
9. *Courtyard*
10. *Old Mormon Fort*
11. *Creek*
12. *Restrooms*




metaldek.com
2:00 pm: After a number of late nights, Roscoe deserves a little one-on-one time.
8:00 pm: You finish your design at home, with your best friend resting happily at your feet.

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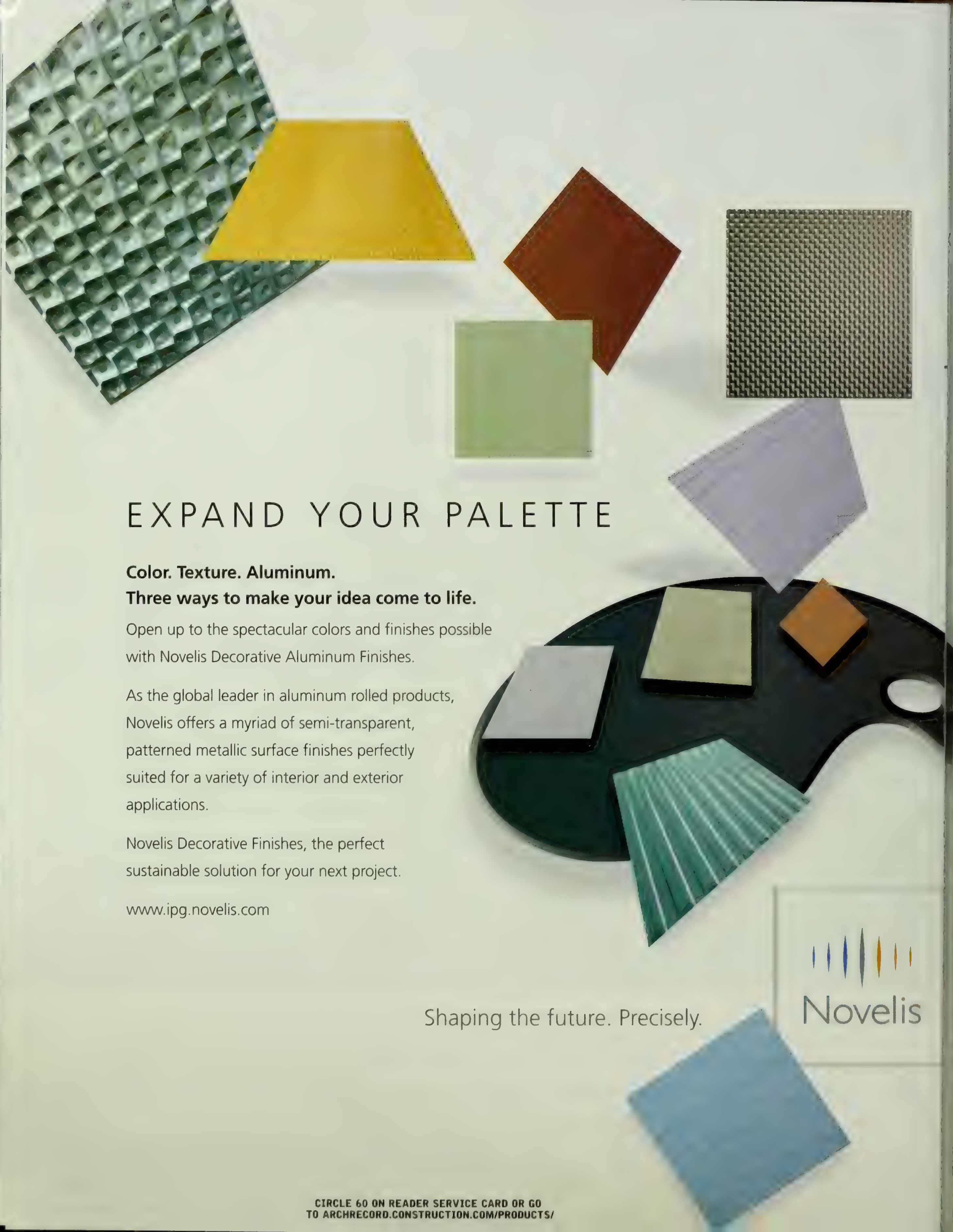

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Loblolly House: In Stock and Ready to Ship

KIERANTIMBERLAKE ASSOCIATES FABRICATES THE LOBLOLLY HOUSE IN A WAREHOUSE, SETTING UP A NEW SUPPLY CHAIN AND ESTABLISHING A BASE TO REVOLUTIONIZE THE FIRM'S FUTURE PRODUCTION

By Russell Fortmeyer

KieranTimberlake's Loblolly House mimics the surrounding pine trees in its raised structure.

Of all the names to give a house, only an architect would settle on the knotty word *loblolly*. Never mind that the house's spectacular site spills onto the wide-open Chesapeake Bay, with a rough cyclopean wall of coastal riprap keeping the water averted; the architects were instead inspired by the pine trees blanketing the grounds, which have the fortune of possessing an unforgettably boisterous vernacular name.

An unlikelier setting—Taylor's Island, Maryland—for an experiment in prefabricated housing perhaps could not be found, but the glorious site for Philadelphia-based KieranTimberlake Associates' Loblolly House is intended to serve just this purpose. Although years in planning, at press time the three-bedroom, two-bath, 2,200-square-foot house lacked only a few finishes and final landscaping after an on-site construction period of less than a month.

"We didn't know fully what we were going to get into with this project," says Steve Kieran, FAIA. "But we knew we wanted this to be a complete realization of a way to build more like the automotive or aviation industry." Kieran, along with James Timberlake, FAIA, laid out a fundamental philosophy of architecture production in their 2003 book, *Refabricating Architecture* (published by McGraw-Hill), which focused on building supply chains, prefabrication processes, and rediscovering the role of the architect as a master builder capable of singularly overseeing all aspects of design and construction. Both architects view Loblolly, designed as a second home for Kieran's family, as an opportunity to test the theories of the book without needing to convince a client to pay the bill.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD/ *AIA Continuing Education article. To receive credit, turn to page 192 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found in the sponsored sections beginning on page 203.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Discuss approaches to prefabricated housing.*
2. *Describe the component approach to house building.*
3. *Compare component process building to standard house building.*

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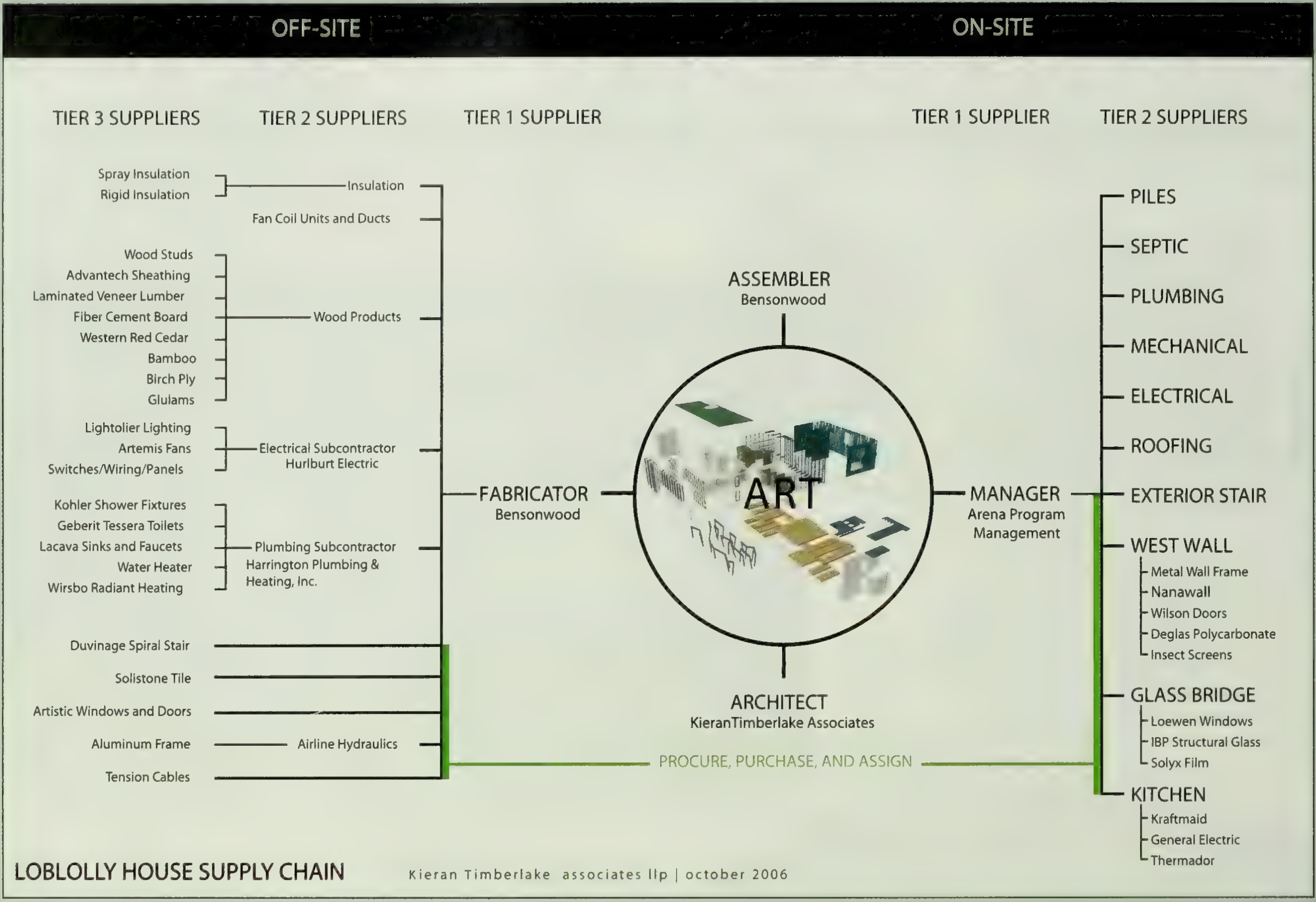
Refabricating history

Failed prefabricated, or modular, housing projects pepper the history of modern architecture. Although early Modern architects embraced the spirit of the mechanized world, the buildings they designed mostly reflected the spirit of the age (think of the mechanized surface aesthetic of early European Modernism) more than they physically provided its solutions. In the realm of residential design, Buckminster Fuller's 1927 Dymaxion House—the first and perhaps reigning champion of humbling attempts at universal prefabrication—remains a touchstone for architects anxious to incorporate the streamlined production techniques and one-size-fits-all mentality of manufacturing into a building industry that has remained relatively unchanged in the past hundred years. Writing in *Arts Magazine* in October 1963, Reyner Banham called the Dymaxion a "radically new environment for domestic living" that parlayed Fuller's penchant for technological "hot-rodding" into a design concept the world needed: an energy-efficient, mass-producible modular house suitable for any site. Among the other few successes, Carl Strandlund's 1947 Lustron House—prefab steel homes with exterior porcelain-enamel-coated panel cladding—achieved some acceptance, with nearly 2,500 built prior to the developer's 1950 bankruptcy. While other stunted projects come to mind—Albert Frey's 1930 Aluminaire House or Matti Suuronen's wacky, bubblelike 1968 Futuro Houses—interest in Modern prefab residences waned until a resurgence in the 1990s spurred in part by the public's rediscovery of Midcentury Modern design, digital and technical advances in mass-fabrication techniques, and the promotional effects of



KieranTimberlake, along with its fabricator Bensonwood and construction manager Arena Program Management, developed a multitiered supply chain to plan how materials would integrate into the final on-site assembly diagram. For the architects, this effort represented the foundation for a true prefab process.

consumer publishing, most notably the cheerleading *Dwell* magazine.

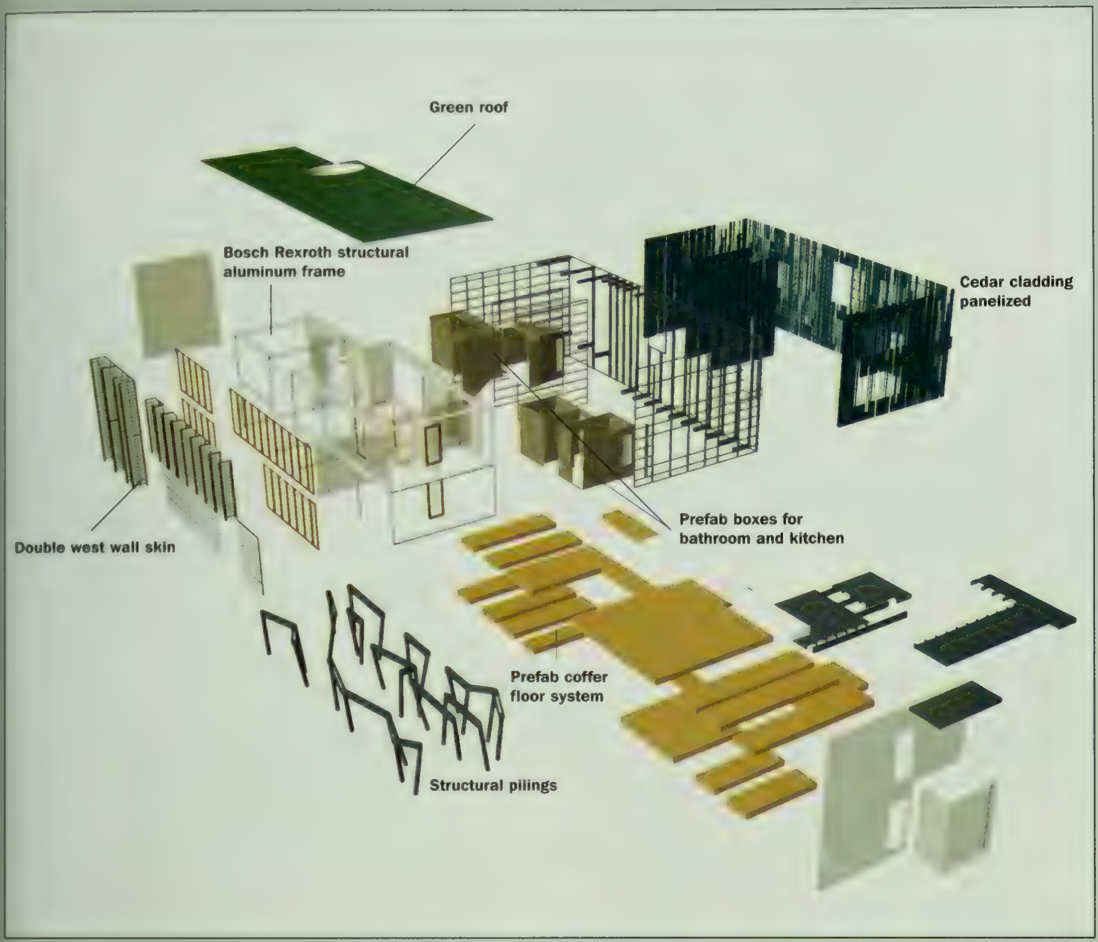
In his essay, "The Great Gizmo," in the September 1965 issue of *Industrial Design*, Banham neatly summarized the progressive objectives of American industrial initiative embodied in prefab: "They do not require high skill at the point of application, they leave craftsmanship behind at the factory." While nearly all Modern prefab houses—particularly those so recently in consumer vogue—share this ambition of realizing standardized components, wide application and adaptability, and quick assembly, few designs have achieved extensive implementation. Experiments in mass-customization of housing by the federal government, such as George Romney's 1970s programs as director of the Housing and Urban Development agency, fell apart when funding evaporated. The grand exception to these trials, of course, clogs highways from coast-to-coast: flat-bed, truck-mounted, factory-built "traditional" homes designed to meet the hauling requirements of the Interstate Highway System. Lately, these units have achieved a certain dreaded notoriety as so-called "Katrina houses."

From the outset, KieranTimberlake Associates (KTA) resisted such conventions. Instead, it was intent to realize a hybrid version of prefab with flexibility in its design to permit a variety of floor plates and programs, even perhaps to eventually find use in commercial and multi-family housing projects. It's not a new house the architects were after, but rather a new production process for architecture or, as they argue in the book, a transformation of the architect into something akin to a process engineer. "There is no incentive to change," Timberlake says. "But, like the car industry, architecture and design will eventually develop a product that works anywhere in the world. At least, it's good to dream that way."

Not your father's prefab

KTA's Loblolly departs most wholly from past prefab models through its innovative component-based design, in which KTA minimized the number of parts. "We want materials we can take apart like used auto parts, as opposed to ending up with rubble," Kieran says. Unlike many houses, even those built with sustainability in mind, Loblolly's components, or elements, as the architects call them, could be unbolted and reconfigured at another site for a different house or, as the architects like to demonstrate in their public lectures, sold off in pieces on eBay.

Both Kieran and Timberlake credit the advances made in digital parametric modeling for enabling the project to move forward. Created in AutoDesk's Revit, one of the most widely used building-information-modeling (BIM) programs, Kieran says the software provides a previously unattainable level of certainty. "We had a new depth of control and a new depth of specificity, geometric certainty, and three-dimensionality, where we could just order materials directly without going through a shop drawing process," Kieran says. He is still somewhat amazed that he could sidestep one of the more time-consuming, paper-wasting jobs of the contemporary


Green roof
Bosch Rexroth structural aluminum frame
Cedar cladding panelized
Double west wall skin
Prefab boxes for bathroom and kitchen
Prefab coffer floor system
Structural pilings

Steve Kieran says the entire Loblolly House fit on two tractor trailers for delivery to the site. The architects reformulated typical house design into larger elements that combine a variety of CSI building materials into simple units, such as floor cartridges, that could be easily installed in the field.

architect. This precision in design entitled the architects to divide the house into a series of major elements: uniform "cartridges" for floors and walls; a standard, off-the-shelf aluminum structure; uniform exterior rain screen cedar panels; and factory-built bathroom and kitchen modules.

These elements fuse, in design and specification form, the Construction Standards Institute (CSI) divisions architects and consultants typically use. Kieran and Timberlake both feel the CSI divisions limit the possibilities for the integration of building components. "CSI doesn't disappear, the products still exist," Kieran says. "They just aren't isolated any longer, they're integrated." But for this to work, the architects needed to establish a new framework for how each conventional material would then be combined into the unconventional elements used in on-site assembly, while also identifying the party responsible for the work—be that the on-site contractor or the prefab assembler.

The supply chain gang

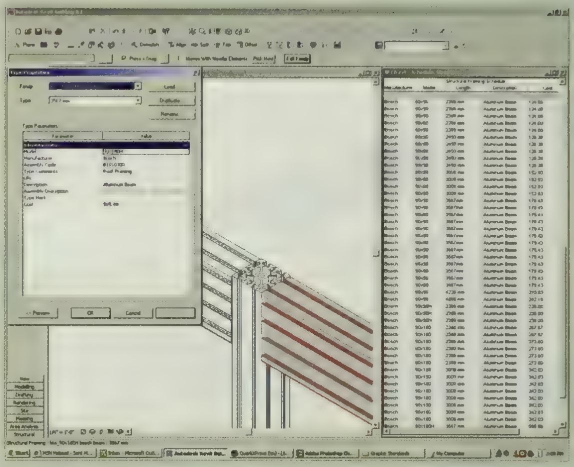
Drawing directly from its book, KTA set about early in the process creating a supply chain of materials and products that could feed the assembly line of elements that would constitute the house. Timberlake considers this the most difficult aspect of the firm's attempt at true prefabrication because, he notes, the "construction industry is so fragmented, with no control of the supply chain and new suppliers starting up every day."

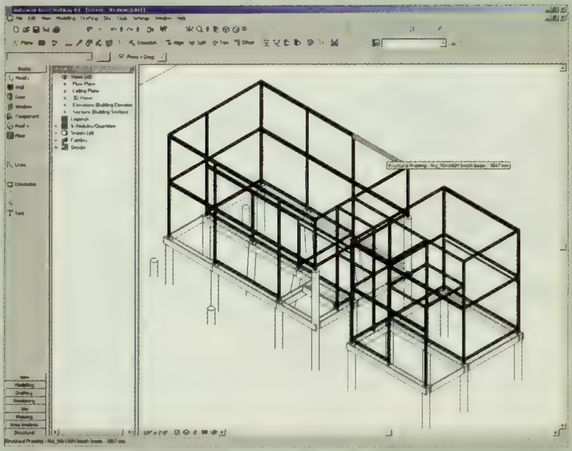
The architects divided the chain between three tiers of suppliers and a final assembler, much in the way automotive companies outsource major components of each car with final assembly at factories throughout the world. In the case of the Loblolly House, Bensonwood—a New Hampshire–based timber-frame-house company—acted as both a supplier and the final assembler. Bensonwood recently completed a quasi-prefab house as part of the Massachusetts Institute of Technology's Open Prototype Initiative, which streamlines a design-build approach for high-quality custom houses with quick construction schedules. Bensonwood, as well as a construction manager, Arena Program Management, collaborated with KTA to devise the specifics of the supply chain for Loblolly.

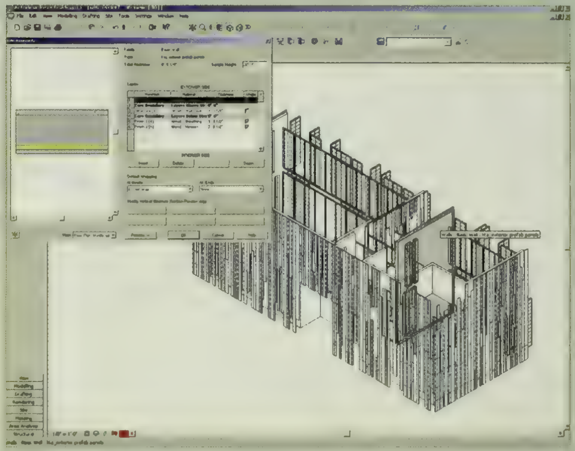
Marilia Rodrigues, a project architect for KTA, helped develop the supply chain, which then fed her work on the virtual model within the Revit software program. Before it became ubiquitous, KTA adopted parametric modeling into its practice after finding inspiration from a 2002 trip the architects took to Boeing's facilities in Everett, Washington. This led to initial development of the Loblolly House on an early version of Revit. KTA's conversion to BIM hasn't been easy; as Timberlake says, "Having learned to draft with a T-square, the hardest part is learning how to work through the fingers and palms of others." Still, both Timberlake and Kieran feel so strongly about the need to evolve their practice, they require BIM to some degree on all projects.

Toward the beginning of the project, the team settled on an extruded aluminum frame structure manufactured by Bosch Rexroth and typically used in factory and temporary structure applications. Knowing the exact specifications of the structure enabled Rodrigues to build a true virtual model with a design tolerance of only a few millimeters, an impossible feat with conventional materials like wood or steel. "With the model,

The architects developed a comprehensive building information model (BIM) using the Revit software program. The model enabled them to precisely order the aluminum frame (below and right), as well as embed supply-chain information regarding other materials, such as the exterior cedar siding (below right).







we see the house as existing," Rodrigues says, which then allowed KTA to order finish items and casework directly. "It's amazing how much our industry relies on that final field measurement, which we didn't need."

Bosch never intended its frame system for architectural use, so KTA developed a collection of five connectors that would meet the structural requirements of a three-story house with its requisite dead, live, and wind loads. While the connectors were expensive to develop (KTA is pursuing patents for its designs), the frame system's reliable measured precision of a 1-millimeter tolerance and the fact the frame could be constructed on-site in a few days won the architects' favor. Even with advanced techniques in computer-enabled steel fabrication, only aluminum, with its silicon-based alloy blend, can achieve this precision without the need for shimming in the field—more than offsetting any cost differences. Additionally, the frame system's grooved channels connect to cartridges, windows, and sliding doors through the use of T-blocks (2,100 in all), which screw the house together.

KTA embedded supply-chain information in the Revit model, so a click on any framing element or finish material displays, such as dimensions, material, and supplier—effectively combining design and specifications into one digital locus. The architects converted the model into AutoCAD, which allowed Bensonwood to convert it into its fabrication software, CadWorks.

"It's elementary, my dear" architecture

The Bosch frame sits on pilings that were put in place over three days in February 2006 during initial site work. According to Chip Arena, the construction manager, the site needed extensive stabilization, since it's almost a marshland in consistency. Soggy grass notwithstanding, the exposed waterfront site explains why the Loblolly House stands on pilotis, though Kieran says hurricane-style flooding is extremely rare on the island. Arena oversaw site utility work, as well as construction of the timber frame connecting the pilings as a base for the Bosch system.

The site, a fragile ecosystem and one of the best places in the country to see bald eagles, benefited from the fact that little area for storage of materials or for staging was required, as elements arrived on-site in a just-in-time-for-assembly manner. The project's swift construction schedule began in late September; on October 4, for example, during a site visit by Kieran, assemblers from Bensonwood unloaded and, with a small crane, placed the roof on the house in nearly 20 minutes. (Kieran intends to plant a sedum green roof in the spring.)

The roof and floors consist of 19 cartridges, which were the main elements fabricated in New Hampshire by Bensonwood and by far the most complex technological innovation of the house. KTA segmented the cartridges into two types: smart, containing radiant heating pipes, electrical distribution and outlets, cooling microducts, and insulation; and dumb, containing only insulation. Both types of cartridges basically consist of standard sheets of plywood (to ease construction and maintain the modular nature of the elements) sandwiched together with conventional wood two-by-fours. The cartridge design also allows access areas for future maintenance.

The smart cartridges, used exclusively for the floor, have utility "whips" that tie into a main supply channel on each of the two occupied

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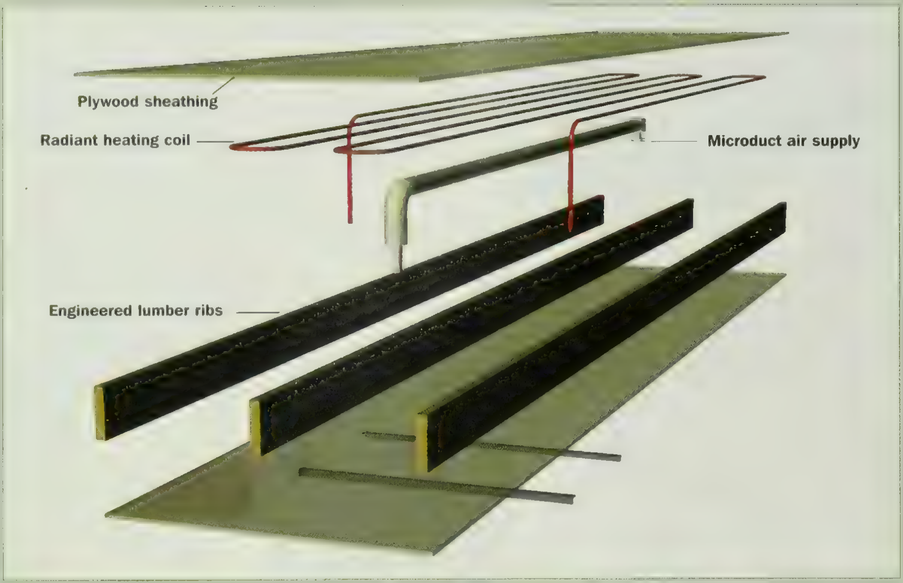
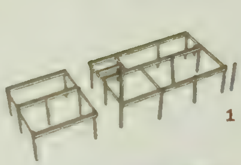


Each smart cartridge (left) for the floor contains building systems that terminate at connectors, which then tie into main service channels on each floor and back to mechanical-room blocks, where the systems "quick-couple" into supply units. Cartridges, as well as blocks, were fabricated in a New Hampshire facility (below left and middle). The extruded aluminum frame (below right), has a precise tolerance of only 1 millimeter.

floors of the house, eventually connecting to mechanical rooms on either end. The mechanical-room blocks, as well as the bathrooms and kitchen, arrived on-site fully framed and nearly finished, moved by crane into place to await final connection. Dumb cartridges make up the exterior walls and hang so the aluminum frame remains on the interior to prevent exposure to moisture. Cement board attached to the exterior face of the cartridges seals the house, while a varied pattern of cedar boards agglomerated into units clip onto the frame, acting as a rain screen and aesthetically nodding to nearby loblolly pines. On-site contractors will fill in gaps from the prefab process, such as putting down the green-dyed bamboo flooring in the main living areas and ceramic tile in the bathrooms. (Bensonwood declined to do both finish items in its shop because of shipping concerns.)

Bensonwood, best known for producing and erecting residential timber frames, but not the houses themselves, retooled its assembly line to fabricate the cartridges and the modules. Hans Porchitz, Bensonwood's project manager, says once he and his colleague's understood KTA's ambition, as well as the details of how every component would interconnect, production of each element went from raw wood stock to finished material with a click of a button as the CadWorks model directly fed the company's computer numerical control, or CNC, machines. Bensonwood's fabricators, as well as subcontractors, like electricians and plumbers (a first for the company), then assembled the materials into the elements for final delivery.

1. *Wooden base frame and pilings in place*
2. *Aluminum frame, first floor, and utility modules added*
3. *All floor cartridges in place*
4. *The house as it appeared October 4*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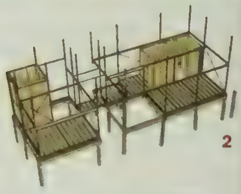
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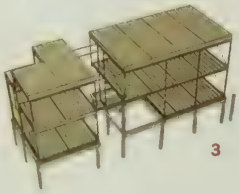
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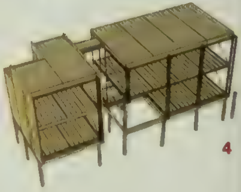
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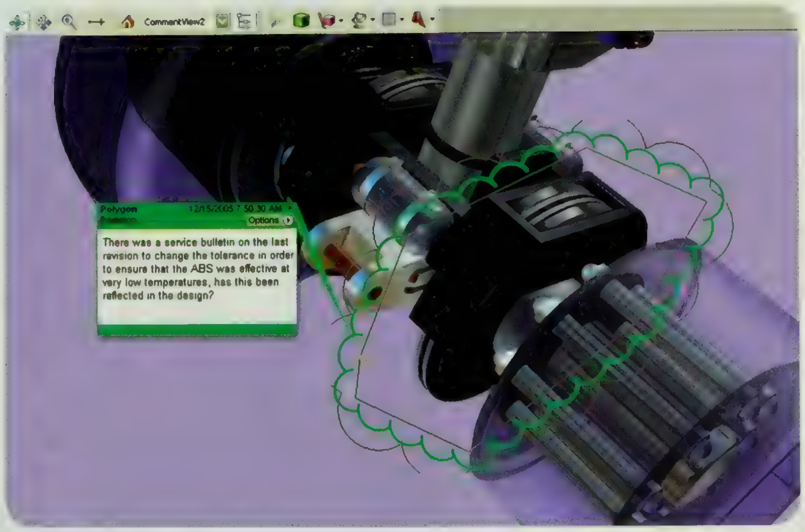
Putting it together

For Bensonwood, the pinch points of the project occurred at the connections of the frame, elements, and systems. "There was no standard, nothing in the book you could use," Porchitz says. "That's really something missing in the construction industry as a whole." Each element, from the aluminum frame to a cartridge to a module, received a bar code (tracked within the Revit model) so that on-site assemblers knew exactly where to install them.

Aside from the aluminum frame connectors, the house uses an innovative system of electrical plug connectors that qualify under codes as junction boxes. This "quick-coupled" system allowed each cartridge's whip to plug into a main electrical channel that could then be plugged directly



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into the house's electrical panel, making field connections foolproof. Flexible radiant heating and domestic water tubing connects at a wall of manifolds in each mechanical room; heating is thermostat-controlled based on each room's environmental needs, but the manifolds also enable manual operation. The microducts, which Kieran says he included at his family's request, since the marshlands can get sticky hot in the dead of summer, also tie back to the mechanical rooms to small air-handling units.

Although the house incorporates heating and cooling systems, the architects designed the entire west wall to open in various stages to the outside, in order to, as Kieran says, tune the house to shifting environmental conditions. A NanaWall system of glass doors provides environmental isolation, while an exterior-mounted, overlying aircraft-hangar-type door system acts as a separate bifold shading device, entirely electrically operated. The house's appearance—three closed sides and one entirely open—encourages Kieran to refer to Loblolly as a "duck blind," one of the ubiquitous hunting accommodations scattered across Taylor's Island.

The other comparison Kieran fondly makes is that of a barn raising, but few barns pack this technological punch. Unlike the garbage heap of unsuccessful prefab experiments of recent decades, which, in Kieran's words, failed to understand the need for predictable, standardized components and connections, the BIM model of Loblolly has proved effective in pulling a theoretical prototype together. "As soon as you get materials out in the field and they don't fit, you're into handwork, and then you might as well have done the whole thing by hand," Kieran muses. "That problem is gone." ■

Loblolly House, pictured above on October 4, was completed last month.

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "Loblolly House: In Stock and Ready to Ship" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 269).**
- **Fill out and submit the AIA/CES education reporting form (page 269) or download the form at archrecord.construction.com to receive one AIA learning unit.**

QUESTIONS

1. Loblolly is different from past prefab houses in which way?
   - **a.** architectural style
   - **b.** componentized design
   - **c.** spaciousness
   - **d.** cost

2. Revit building-information-modeling software eliminated which process?
   - **a.** shop drawings
   - **b.** inspections
   - **c.** foundation pouring
   - **d.** construction bidding

3. At Loblolly, the architects needed to establish a new framework for how each conventional material in the house would do which?
   - **a.** be put into CSI divisions
   - **b.** be integrated into elements
   - **c.** be coded for assembly
   - **d.** be estimated for labor costs

4. What aspect does KTA consider to be the most difficult part of prefabrication?
   - **a.** construction workers
   - **b.** weather conditions
   - **c.** supply chain
   - **d.** local codes

5. The advantage of using an extruded aluminum frame is which?
   - **a.** it is stronger than wood or steel
   - **b.** it is more attractive than wood or steel
   - **c.** it is more cost-effective than wood or steel
   - **d.** it has tighter tolerances than wood or steel

6. Supply-chain information is incorporated into which software?
   - **a.** Revit
   - **b.** AutoCAD
   - **c.** CadWorks
   - **d.** all of the above

7. In the Loblolly House, the exterior walls consist of which?
   - **a.** dumb cartridges
   - **b.** smart cartridges
   - **c.** aluminum frame
   - **d.** bamboo

8. Both smart and dumb cartridges consist of standard sheets of plywood and which?
   - **a.** metal studs
   - **b.** wood studs
   - **c.** plastic channels
   - **d.** aluminum channels

9. The electrical plug connectors that can be plugged directly into the house's electrical panel make field connections which?
   - **a.** costly
   - **b.** labor intensive
   - **c.** foolproof
   - **d.** difficult

10. The advantages of the KTA-developed system include all except which?
   - **a.** the house is cheaper to build
   - **b.** the house needs little area for staging materials
   - **c.** the house is quicker to assemble
   - **d.** the house uses fewer field laborers

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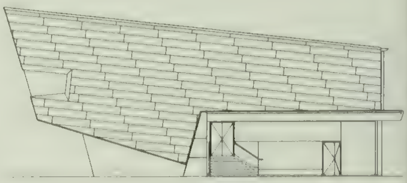

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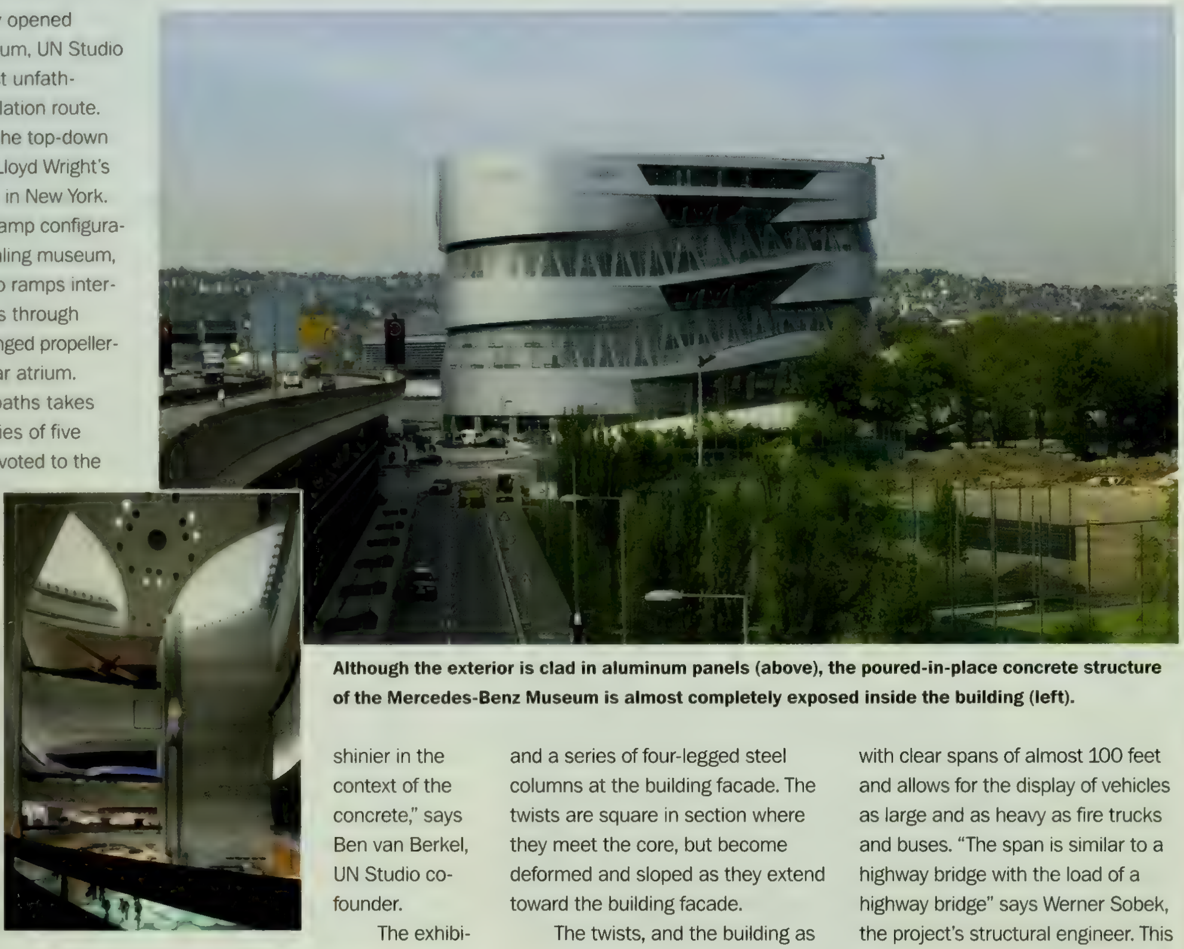
Tech Briefs

Construction and design team use parametric three-dimensional model to build Stuttgart's new temple for the automobile and to manage its challenging geometry

Zoomy Mercedes-Benz Museum ties curvy structure with complex spatial configuration



Although the exterior is clad in aluminum panels (above), the poured-in-place concrete structure of the Mercedes-Benz Museum is almost completely exposed inside the building (left).

At Stuttgart's recently opened Mercedes-Benz Museum, UN Studio has created an almost unfathomably complex circulation route. The building borrows the top-down organization of Frank Lloyd Wright's Guggenheim Museum in New York. But unlike the single-ramp configuration of the earlier spiraling museum, at Mercedes-Benz two ramps intertwine and lead visitors through exhibition spaces arranged propeller-like around a triangular atrium.

One of the two paths takes visitors through a series of five single-story rooms devoted to the car and truck collection. The other route outlines the company's history in a series of seven double-story rooms (see section, page 130). Each stacked trefoil-shaped floor unit is rotated 120 degrees from the one below it and contains two exhibition areas with floor elevations that differ by about 3 feet.

This twisted (literally) spatial arrangement is integrated with the building's equally complex poured-in-place concrete structure. The material is almost completely exposed inside the building because it is the ideal backdrop for the exhibits, explains the architect. "The car becomes much shinier in the context of the concrete," says Ben van Berkel, UN Studio co-founder.

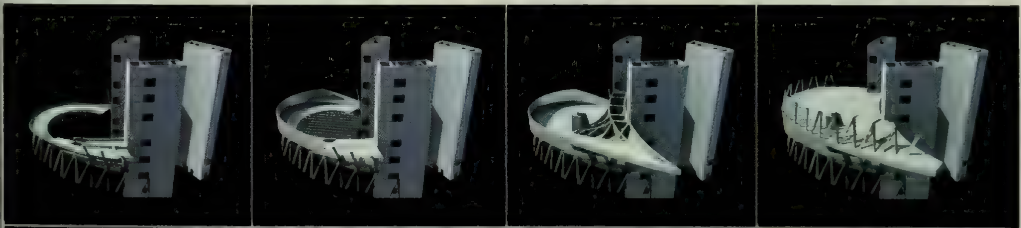
The exhibition-area floors, which are made primarily of concrete but have steel construction at their centers to reduce weight, are supported by the circulation ramps and elements the architect has dubbed the "twists." These curved box girders transfer the loads between the three vertical circulation cores that rise in the atrium and a series of four-legged steel columns at the building facade. The twists are square in section where they meet the core, but become deformed and sloped as they extend toward the building facade.

The twists, and the building as a whole, are so sculptural that it is often difficult to distinguish one architectural element from the other. "The ceiling slowly transforms into the wall, which transforms into the floor," says van Berkel.

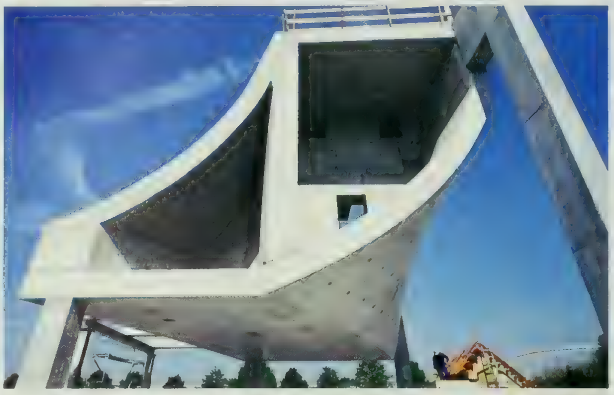
The configuration of the 270,000-square-foot museum makes possible column-free spaces with clear spans of almost 100 feet and allows for the display of vehicles as large and as heavy as fire trucks and buses. "The span is similar to a highway bridge with the load of a highway bridge" says Werner Sobek, the project's structural engineer. This point was of particular importance to the client because the building the museum previously occupied did not have bearing capacity suitable for the presentation of commercial vehicles.

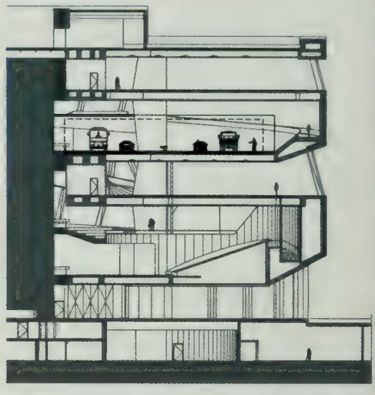
Ductwork and other services are integrated directly into the curved twist elements, which contain voids large enough for maintenance-staff access. These mechanical spaces are like "another building woven inside the museum," says Sobek.

Before construction began, the project team built a full-scale mock-up of one of the twists. Contractors used the mock-up to learn how to form the double-curved surfaces. The process also helped determine the ideal concrete formula and how best



The museum's structural elements include the vertical cores, ramps, "twists," and four-legged steel columns.





The structural configuration of the museum provides column-free exhibition areas spanning almost 100 feet and capable of supporting objects as heavy as buses and trucks (directly above). To test the concrete mix and determine how to achieve a homogenous surface where two formwork elements meet, the construction team built a full-scale mock-up of a twist segment (above left). The formwork for the underside of a twist, with ties located, is installed on the building site (left).

to achieve a homogeneous surface where two formwork components joined, according to Jochen Köhler, a project manager for Peri GmbH, the museum's formwork subcontractor.

The challenge of realizing the daunting project was magnified by the client's requirement that the building be completed by May 2006, in time for the deluge of soccer fans that would converge on Stuttgart for the World Cup. With about eight months for preparation of construction documents, and two years for execution, "It was one of the speediest projects we ever worked on," says van Berkel.

In order to complete the museum on such a tight schedule, the design and construction team relied on a building information model shared by all project participants and managed by the consultant Arnold Walz and UN Studio. The ability to read and create three-dimensional drawings was one of the contractor selection criteria, according to the architect.

The data contained in the 3D "mother" model was especially useful to the concrete work. The steel reinforcement encased inside the building's many compound curves, for example, could not be described in two dimensions. "The length would be wrong due to the 'map of the world problem,' " says Sobek, referring to the distortion that occurs when the spherical shape of the Earth is flattened into 2D.

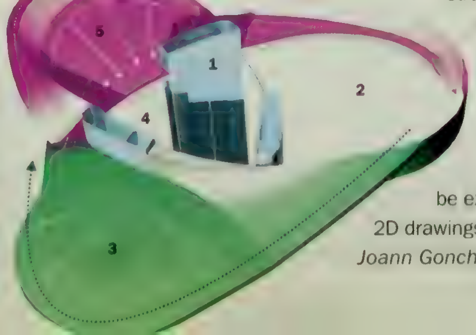
Spatial coordinates from the model were also used to precisely place the individual formwork elements on the construction site with a global positioning system. "For this kind of building it was the only possible way to bring our elements into position," says Köhler.

Although it was crucial to the project's success, the team did not rely solely on the model. "There were parts you had to do in 3D and there were parts you could do in 2D," says Köhler. Peri used traditional shop drawings to describe pieces of the building that did not contain compound curves and were made with typical formwork components. Köhler says it was most efficient to have the majority of team members "work in their 2D standard way and have a few additional experts that have knowledge and experience in 3D work."

Van Berkel says that bringing the project to fruition required both traditional 2D drawings and the parametric model, because "construction is not yet as advanced as the car industry" in its use of building information modeling. But, he predicts, the day when a project will be executed without any 2D drawings "is not so far away."

Joann Gonchar

The museum consists of stacked trefoil-shaped elements, each with two propeller-shaped spaces—one for vehicles and the other for historical displays.



1. *Vertical core*
2. *Void*
3. *Car/truck collection*
4. *Atrium*
5. *Historical displays*

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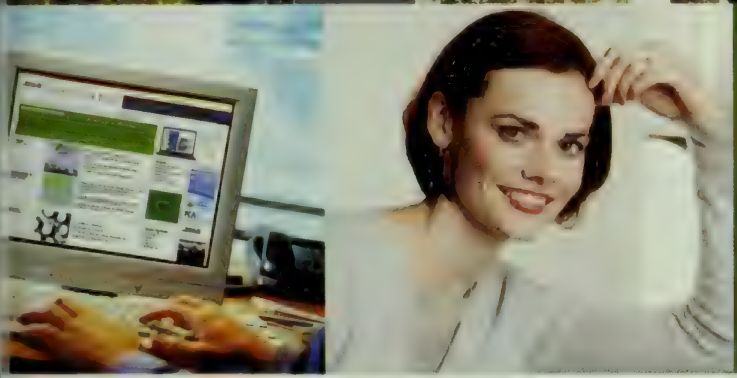

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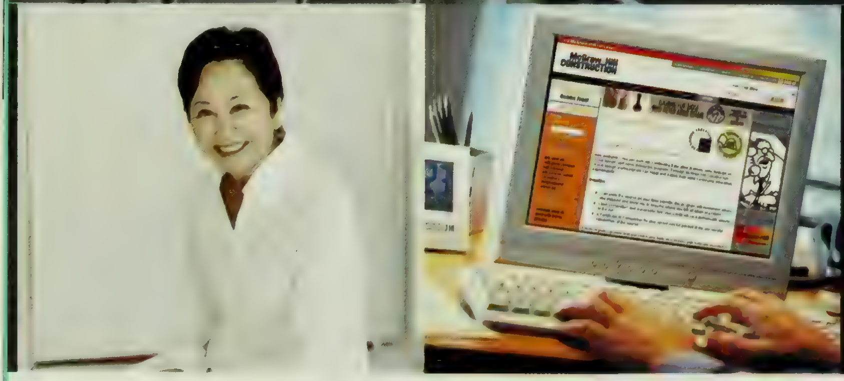

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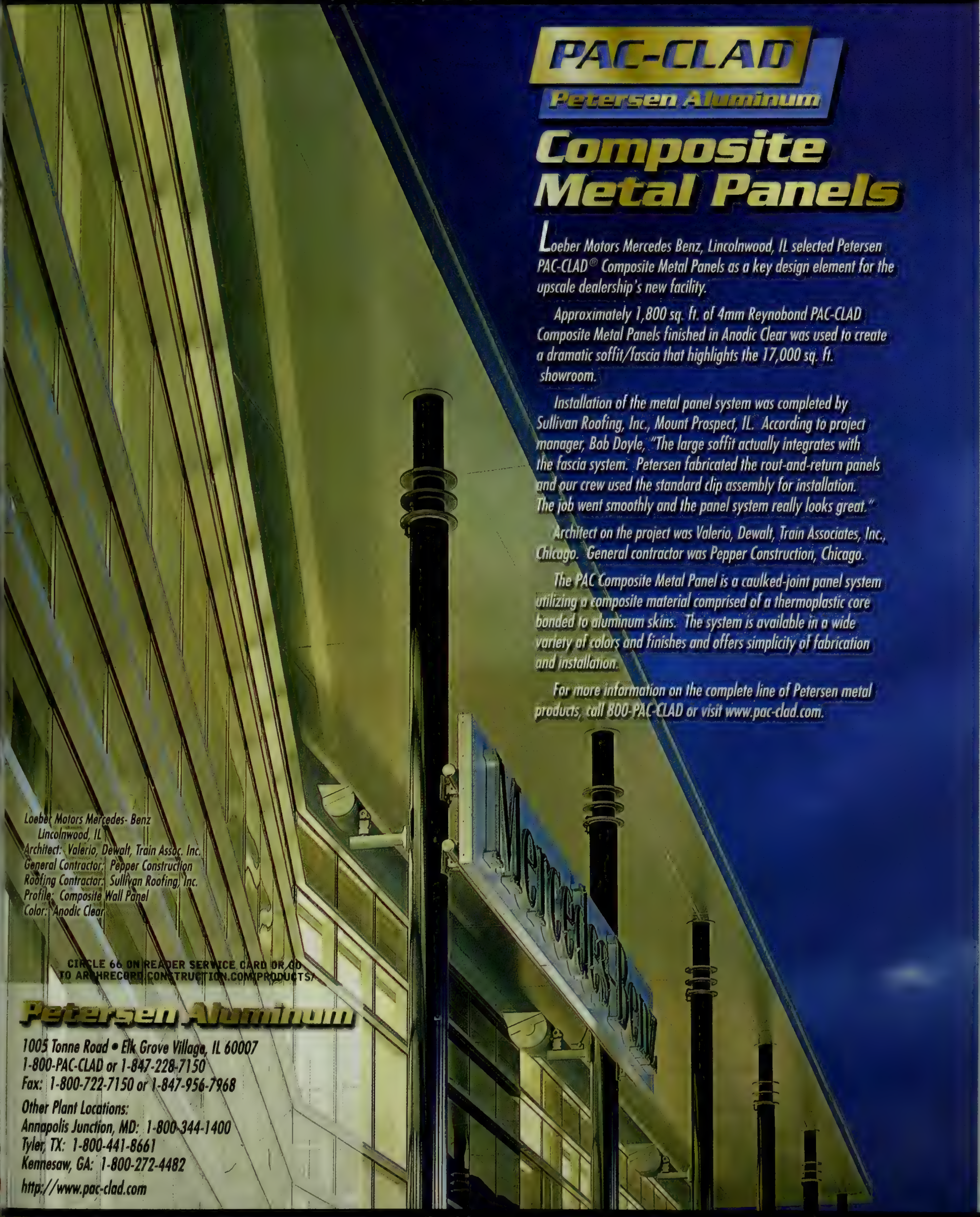

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AIA/ARCHITECTURAL RECORD
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Section: November 2006

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205-209 American Hardwoods Enhance Healthy, Healing Spaces

Meeting the exacting requirements of aesthetics, sustainability, durability

Provided by The Hardwood Council

LEARNING OBJECTIVES:

- *Discuss the latest research on the use of natural materials in healing environments*
- *Identify the performance characteristics and qualities of American hardwoods in healthy spaces*
- *Evaluate the occupant-centered design considerations in specifying hardwoods*
- *Analyze considerations for hardwood care and non-toxic cleaning in health care settings*

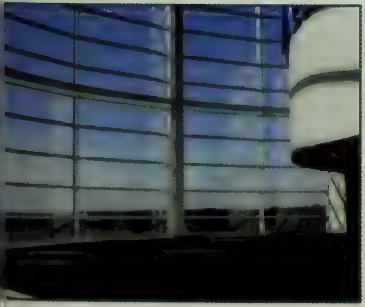
211-215 Western Red Cedar Shakes and Shingles: A Sustainable, Versatile Roofing Choice

Durable and weather-resistant, cedar roofs blend natural aesthetics with performance

Provided by The Cedar Shake and Shingle Bureau
By Lynne Christensen, MBA, CAE

LEARNING OBJECTIVES:

- *Explain the benefits and characteristics of cedar shakes and shingles*
- *Understand why cedar shakes and shingles are fire retardant and hurricane resistant*
- *Identify wildfire mitigation strategies*
- *Discuss the criteria for maintaining a long-lasting cedar roof*



217-221 Green Building: Essential Design Strategies For a Sustainable Future

Leveraging Environmentally Efficient, Economic Solutions with Solar Insulating Glass, Ceiling Recycling Programs, and Water Conservation

By Barbara A. Nadel, FAIA

LEARNING OBJECTIVES:

- *Evaluate how to reduce environmental impact and building energy costs through sustainable design*
- *Identify performance characteristics of solar insulating glass*
- *Analyze the sustainability benefits of a recycling program for mineral fiber ceiling tiles*
- *Explain why water conservation is important to the environment*
- *Implement water conservation strategies with water efficient plumbing fixtures and valves, including high efficiency toilets, dual flush toilets, waterless urinals, and electronic faucets*

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American Hardwoods Enhance Healthy, Healing Spaces

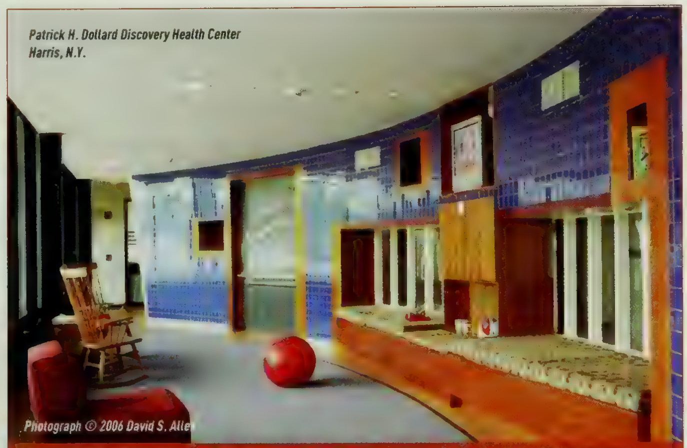
Meeting the exacting requirements of aesthetics, sustainability, durability

***Provided By:* The Hardwood Council**

Hardwood floors, cabinets, furniture and trim have brought warmth and beauty to the built environment for centuries. With more than 20 species offering aesthetics, durability and ease of maintenance, American hardwoods are an important component of green, occupant-centered design and architecture. They are specified and used effectively in buildings where sustainability, life-cycle costing and enhancing occupants' health and well-being are design priorities.

Health care settings in particular, from retirement and assisted living facilities to acute care hospitals, are turning to hardwoods to "warm up" their interiors. Thanks to low-volatile organic compound (VOC) wood finishes and non-toxic cleaning products, hardwoods are used in public and patient areas to create a stress-reducing, home-like environment that promotes healing while standing up to the health care sector's rigorous requirements for durability, indoor environmental quality and infection control.

American hardwoods not only meet health care's unique challenges, they also are part of he green building movement gathering steam in commercial, institutional and residential ettings. They contribute to project cost-effectiveness and sustainability, environmental uality and user satisfaction—all while bringing a sense of hospitality and visual richness o the built environment.



Patrick H. Dollard Discovery Health Center
Harris, N.Y.

Photograph © 2006 David S. Alle

Designed by Guenther 5 Architects in New York, the Dollard Discovery Health Center is one of two LEED-certified health care facilities in the United States. Locally harvested cherry was specified throughout the hospital, including this pediatric waiting area.

American Hardwoods Defined

ardwoods are deciduous trees that have broad leaves, produce a fruit or nut and generally o dormant in the winter. American forests grow hundreds of varieties of hardwood trees that thrive in this country's temperate climates. In fact, the U.S. has the world's most diverse temperate hardwood forests, with more variety in such hardwood species as oak, ash, alder, maple, cherry, hickory and poplar. The most prevalent hardwood species in the U.S. is oak: together, red and white oak represent 52 percent of all hardwood trees growing in the U.S. forests.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **American Hardwoods Enhance Healthy, Healing Spaces.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 209, then follow the reporting instructions on page 224 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you will be able to:

- *Discuss the latest research on the use of natural materials in healing environments*
- *Identify the performance characteristics and qualities of American hardwoods in healthy spaces*
- *Evaluate the occupant-centered design considerations in specifying hardwoods*
- *Analyze considerations for hardwood care and non-toxic cleaning in health care settings*

As temperate species, American hardwoods have growing seasons that produce the growth rings that result in the varied grain patterns when sawn. In contrast, tropical species' appearance is more uniform and patternless precisely because they do not have distinct growing seasons.

Research and Environmental Design

An emerging body of research and observation is showing that natural materials are more than substitutes for toxic building materials: They are important in achieving occupant health and well-being, stress reduction, healing and increased productivity.

In a 1984 study, Roger Ulrich, Ph.D., Professor of Architecture and Landscape Architecture at Texas A&M University, showed that patients recovering from gall bladder surgery recovered more quickly and required less pain medication if their hospital room window had a view of trees rather than a brick wall—findings with clear cost-related implications. Some 20 years later, the Center for Health Design in Concord, California, published a watershed report written by Ulrich and others. It summarizes the findings of more than 600 studies that link design decisions to clinical outcomes. Research is substantiating that patients in home-like, reduced-stress health care environments require less medication or experience shorter hospital stays, thereby reducing costs. Natural materials including native hardwoods are an important part of these settings.

Patients in home-like, reduced-stress health care settings may require less medication or experience shorter hospital stays.

"It's been proven that nature really lowers your anxiety level," says Ana Maregatti, IIDA, President, Maregatti Interiors, Indianapolis, Indiana. "Ninety percent of people will say they feel best somewhere outdoors. It could be in the mountains, by a creek or the ocean. So how do we bring the outdoors inside to create a healing environment with the natural materials? We're not only talking wood, but we also bring a lot of natural stone, slate floors, or glass to show some transparency in the space to make it more nurturing and inviting."

Throughout the design and building community there is growing enthusiasm for incorporating nature into the built environment. Key underpinnings of this trend include:

Biophilia: Popularized by Harvard biologist Edward O. Wilson in his 1984 book, *Biophilia: The Human Bond with Other Species*, biophilia is defined as "the connections that human beings subconsciously seek with the rest of life." As translated into the built environment, biophilia signifies such design features as use of local, natural materials; natural ventilation and opportunities to have contact with nature both physically and visually.

The Planetree Principles: In 2003, Susan B. Frampton, Laura Gilpin and Patrick A. Charmel published the Planetree principles for patient-centered health care in their book: *Putting Patients First, Designing and Practicing Patient-Centered Care* (Jossey-Bass).

The Planetree model aims to transform health care settings from high-tech and sterile to warm, comfortable, nurturing, stress-reducing and people-centered. In the Planetree approach, design can help to create a healing environment and is an integral part of the patient's experience of health care.

When it comes to non-toxic and natural materials, the authors note: "The use of different textures is also important to minimizing the institutional feel of a hospital. Our homes are filled with a variety of rich textures and the presence of different tactile elements can remind patients of home." They add that designers and architects can achieve that objective by using, among other things, wood furnishings and cabinetry throughout health care facilities.

Lewis and Clark State Office Building
Jefferson City, Missouri
Photograph © 2006 Mike Sinclair

Designed by BNIM Architects of Houston, the building houses Missouri's Department of Natural Resources, and features paneling of regionally harvested ash.

Evidence-based design: A natural corollary to evidence-based medicine, evidence-based design (EBD) uses research and project experience to develop appropriate individual design solutions. In health care design, testimony is accumulating that natural materials, daylight and views of nature appear to affect healing outcomes in measurable ways.

"The whole field of evidence-based design is a new and emerging area," says Jocelyn Stroupe, IIDA, AAHID, Director of Healthcare Interiors and Principal, OWP/P Architects, Chicago, Illinois. "There's just so much more awareness right now from our health care clients and they like to do anything possible to help their patients heal faster and enable their staff to deal with the work-related stress."

Anjali Joseph, Director of Research at the Center for Health Design says, "In hospitals, many studies have shown that people do prefer natural environments over urban environments, and many studies have also shown that people prefer views with nature." She adds the center is working on ways to help architects who are conducting, or interpreting the type of primary research that is the hallmark of evidence-based design.

Leading architects are bringing nature indoors via hardwoods and other natural materials to the benefit of patients, their families and even staff. While occupant-centered and evidenced-based design are becoming accepted practice in health care, the knowledge is pertinent to any building used for living, working, playing or learning. Architects who ignore this growing body of knowledge may be missing a point of competitive advantage.

> ***"The hardwood gives them an impression of something that is less institutional looking."***

According to Katrina Barnett, AIA, of Radelet-McCarthy in Pittsburgh, Pennsylvania, her firm not only used hardwoods in the public spaces of several Pittsburgh hospitals, but also in patient care areas, "to make the patients feel more comfortable. The hardwood, a natural material, gives them an impression of something that is less institutional looking; it adds some warmth to the space."

Scott McFadden, Vice President and Director of Design, at Maregatti Interiors, echoes that sentiment, saying that when his firm has used hardwoods, "We were trying to create an environment that felt very home-like and very friendly and we were trying to use materials that people would be comfortable with, products they maybe even have in their own home. Natural materials like wood and stone really do seem to help people feel more comfortable and heal as if they are in a more home-like environment."

In her health care designs, Ana Maregatti says she is "trying to evoke confidence, trust and comfort. We know that confidence goes with longevity and the materials we're selecting have to have longevity. That's why we're going to use natural materials like wood: it's been since the beginning of life. It's a material tha gives you something you can count on."

Design Considerations

A hardwood product's durability, sustainability, life-cycle costing, environmenta certification potential and aesthetics are all important design considerations.

Durability

Pro basketball is played on maple floors; freight trains run on oak rail ties; America hardwoods are durable under intense usage. However, some hardwoods are stronger tha others and not all species are equally suited for all applications. The toughes commercially available American hardwood is hickory, and it is five times denser tha aspen, one of the "softer" hardwoods which is not used for flooring. In descending order o durability on the Janka hardness scale, hickory, hard maple, red and white oak, birch, ash walnut and cherry are the woods generally used for flooring and they all offer more tha sufficient durability in active settings. The other American hardwood species work well i furniture, cabinetry, trim and architectural detailing.

In the 120,000-square-foot Lewis and Clark State Office Building for the Missou Department of Natural Resources, Houston-based Berkebile, Nelson, Immenschuh an McDowell (BNIM) Architects specified locally harvested oak as a durable, sustainabl flooring material for high-traffic areas such as the four-story atrium lobby and elevat areas. "We used solid white and red oak for flooring in the common areas," explain Kimberly Hickson, AIA, Principal and Manager of BNIM's Houston, Texas, office. "With an wood, if we are specifying it for flooring, we are looking at it for its durability."

In March, 2005, the Lewis and Clark building achieved LEED-Platinum status, one of only 14 other buildings in the U.S. that met the LEED-NC Platinum requirement of a minimum of 52 out of a possible 69 points.

American cherry was chosen for durability at the Hansen Center at Mary Margaret Community Center, Batesville, Indiana. "Primarily we used cherry because we needed it to function well, to hold up well, in a place that can be pretty abusive and we wanted to get the warmth of the richness of the color and the grain," says McFadden of Ana Maregatti Interiors. Cherry also was used for the bump rails that protect hospital walls from damage from equipment and medicine carts and patient guernies.

> ***Only about 5 percent of the tropical forests covered by a recent extensive study are sustainably managed.***

Sustainability

While many tropical hardwoods rank high on the Janka hardness scale, density is one criterion among several to be considered when specifying hardwood products. Architects concerned with product sustainability should also consider whether the wood is harvested legally and responsibly. The first steps are to determine whether the species is on any CITES (Convention on International Trade in Endangered Species) lists, and whether the supplier participates in a certification system.

Beyond that, Jim Bower, Ph.D. of Dovetail Partners, Inc. notes the International Tropical Timber Organization stated in July, 2006 that only about 5 percent of the tropical forests covered by a recent extensive study are sustainably managed.

n contrast, he says questions about the sustainability of U.S. tree species are more easily answered because, "We would find current and trend data regarding net annual growth and emovals for that tree species, as well as information about volume by age and size class and by forest ownership category. There also would be reasonable certainty that harvesting was done in accordance with municipal, county, state and federal forest management guidelines and regulations." He elaborates in an August, 2006 report titled, *Have Tropical Woods in your Product Line? How to Know If They Were Harvested Legally, Responsibly.* www.dovetailinc.org).

While it's widely recognized that natural materials enrich the built environment, some architects may hesitate to specify American hardwoods out of concern for their sustainability. However, every year, U.S. hardwood forests grow far more hardwood than is harvested. The U.S. Forest Service states that the hardwood volume in American forests increases by 10.2 billion cubic feet yearly, while annual removals otal only 6 billion cubic feet. Consequently, the volume of American hardwoods is 90 ercent larger than it was 50 years ago.

> ***"When we specify wood, for sustainability reasons we make sure to use what we call 'regional native species.'"***

cross the U.S. hardwood-growing areas, climate and soil vary, favoring different species. ard maple, for example, grows in the northern states, but not in the Mississippi Delta. hoosing from regionally native species adds to a design's sustainability.

NIM's Hickson notes that native species were specified for the LEED Platinum Lewis and lark Building. "Oak is readily available in the Midwest so it was a perfect match for our eeds," she says. "The red and white oak used for the flooring applications was harvested rom a sustainably managed forest in Missouri."

Peter Syrett, AIA, Principal, Guenther 5 Architects, New York, New York, also believes in using materials native to the region. He specified cherry for the 28,000-square-foot Patrick H. Dollard Discovery Health Center in upstate New York, one of only two U.S. LEED-certified health care facilities, and New York's first medical facility to implement green building standards that meet state Department of Health requirements. "The Northeast has the greatest variety of hardwood trees in the entire country," says Syrett, explaining Guenther 5's decision to use cherry as the featured hardwood in the project. "When we specify wood, for sustainability reasons we make sure to use what we call 'regional native species.' We chose to work with cherry for this reason, but also because it is a beautiful wood that worked very well with the rest of the palette."

Syrett focused the use of hardwood in patient recovery rooms, administrative offices and detailed accents throughout the facility in applications including paneling, millwork and cabinetry. "While most of the hardwood used was veneer, all edging and trim was crafted from solid stock," says Syrett. "After three years, there have been no care or maintenance issues with the cherry wood products used in the facility."

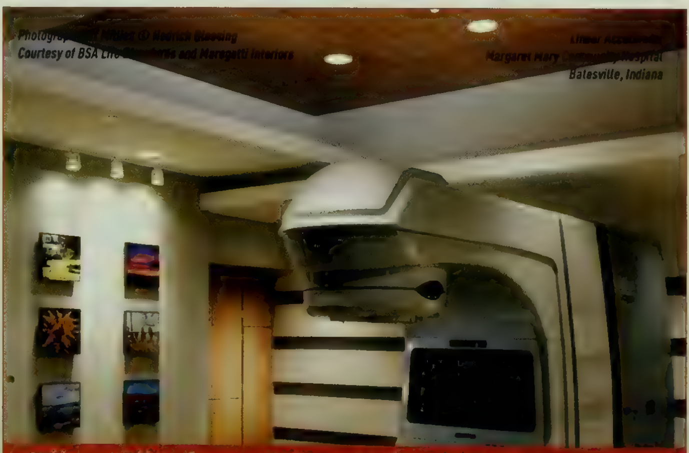
Life-Cycle Cost

When it comes to choosing interior surface materials, health care facilities often have opted for synthetic products because of their durability, ease of maintenance and "sanitary look." But these materials may contain harmful polyvinyl chloride and volatile organic compounds (VOC).

What's more, architects have begun to challenge the notion that synthetic materials are less expensive than natural products. Sue Tartaglio, Interior Designer, Burt Hill, Butler, Pennsylvania, has developed a life-cycle cost comparison of a dozen frequently used synthetic and natural flooring products, based on manufacturers' published maintenance data/life-cycle costs, and conversations with manufacturers' representatives. The matrix shows that in facilities with a lifetime use of more than 15 years, hardwood flooring, while it may have higher upfront costs, has life-cycle costs that are significantly lower.

The daily maintenance on these floors is really greatly reduced. Frequently, it's a matter of sweeping or damp mopping them to remove surface soil. And with their smooth surfaces, hardwood floors don't harbor animal dander, fleas, dust, mites, pollen or other allergens—the reason that doctors often recommend them for patients with allergies and respiratory problems.

"Over the long run, acrylic impregnated hardwoods, in fact, have one of the lowest life-cycle costs," says Tartaglio, referring to pre-finished hardwood floor products in which acrylic has been forced into the wood pores, creating an extremely hard surface.



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Linear Accelerator
Margaret Mary [illegible]
Batesville, Indiana

At Margaret Mary Community Hospital in Batesville, Indiana, an American cherry ceiling serves as a "positive distraction" for patients undergoing a procedure in the Linear Accelerator Suite

In the comparison, average installed costs per square foot range from $1,400 for vinyl comp tile to $12,000 for bamboo and hardwood, with linoleum, cork, rubber, sheet vinyl, carpet and ceramic tile falling in between. Since the comparison considers useable product life, replacement, cleaning and labor cost over 15 years, products with some of the lowest initial costs wind up having among the highest total life-cycle costs. In fact, hardwood, rubber and bamboo flooring have the lowest total cost at 15 years among the 12 flooring materials compared.

Of the more than 1,200 species of fast-growing grasses known as bamboo, the Moso bamboo species is considered optimal for use in flooring, with a few caveats: the bamboo should be properly aged and only the middle section of each stalk should be used in order to deliver the proper strength and moisture content. In addition, architects should ask bamboo flooring suppliers whether the bamboo plantations use pesticides and chemical fertilizers, and what type of resin is used to bond the grass stalks in the flooring manufacturing process.

Green Certification

While environmental certification and sustainability are not necessarily synonymous, many architects and clients opt to pursue ratings through LEED, GreenGlobes™ and the Green Guide for Health Care™.

Currently, LEED standards extend credits only to hardwoods certified by the Forest Stewardship Council (FSC). However, there is extremely limited availability of FSC-certified hardwoods because more than three-quarters of U.S. hardwood forests are in private ownership. This fragmented ownership among millions of different individuals and families has posed an obstacle in enrolling hardwood forests in the fee-based, third-party FSC certification program established in the 1990s.

Photographs © 2006 Laurie E. Dickson Photography

Maple floors and other hardwoods are integral to the healthy home environment created for Tias and Surya Little, two internationally renowned Yoga instructors, by Paula Baker-Laporte, AIA

Even for architects and clients eager to achieve LEED certification, budget constraints are an important consideration. When pursuing a LEED credit in one area becomes too costly, architects can recoup points in another category. With the Lewis and Clark office building, both architect and client agreed that the cost to procure FSC-certified ash and oak would be too great. Forgoing the LEED-NC materials certification point, the design team made a conscious effort to instead pursue the regional sourcing credit (MR 5.1). This credit requires a minimum of 20 percent of building materials that are manufactured within 500 miles of the project.

"FSC certification is an extra expense that we just didn't have room for in the budget. This client came to BNIM wanting the greenest building possible with the money they had. Cost was a major factor in the decisions we made," notes Hickson.

Obtaining Environmental Credits for Hardwoods

American hardwood products can contribute to a building's green rating under sections of three leading certification systems.

LEED

The LEED (Leadership in Energy and Environmental Design) Green Building Rating System® is a voluntary, consensus-based national standard for developing high-performance, sustainable buildings.

- MR5.1 – Regional materials: 20% manufactured regionally
- MR5.2 – Regional materials: 50% extracted regionally
- MR7 – certified wood

Green Globes™

The Green Globes™ system is a green management tool for integrating environmentally friendly design into commercial buildings.

- E.1 Materials with low environmental impact
- E.2 Minimized consumption and depletion of material resources
- G.2.9 Materials specified low-VOC emitting and third-party environmentally certified

Green Guide for Health Care™, the healthcare sector's first quantifiable sustainable design toolkit, largely mirrors the LEED credit structure.

- MR 5.1-5.2 – Regional Materials
- MR 7 – Certified Wood

Trend Toward Pre-Finished

In health care settings, the trend is toward use of pre-finished hardwood flooring, millwork and casework products. Reasons include improved quality control, cost-effectiveness and indoor air quality.

When it comes to indoor air quality in residential settings, Paula Baker-Laporte, AIA, Principal and Owner of Baker-Laporte and Associates, Sante Fe, New Mexico, stipulates that two groups of people must be considered when designing a healthy home: those who are chemically sensitive and those who aren't, but desire a healthful space.

"For people who are very chemically sensitive, I recommend a factory U.V. floor finish so that they don't have to refinish in their home. Pre-finished materials are off-gassed under controlled conditions and the client receives an inert product," elaborates Baker-Laporte. "In the case of healthy people without chemical sensitivities, there are many low- or zero-VOC finishes that work within the parameters of healthy design." ■

CLICK FOR ADDITIONAL SUPPLEMENTAL READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0611hardwood-1.asp***

AIA/ARCHITECTURAL RECORD **CONTINUING EDUCATION** Series

LEARNING OBJECTIVES

After reading this article, you will be able to:

- *Discuss the latest research on the use of natural materials in healing environments*
- *Identify the performance characteristics and qualities of American hardwoods in healthy spaces*
- *Evaluate the occupant-centered design considerations in specifying hardwoods*
- *Analyze considerations for hardwood care and non-toxic cleaning in health care settings*

NSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 171. Follow the reporting instructions, nswer the test questions, and submit the form. Or use he Continuing Education self-report form on *Record's* web site—*rchrecord.construction.com*—to receive one AIA/CES Learning Unit ncluding one hour of health safety welfare credit.

QUESTIONS

.. The most prevalent hardwood species in the U.S. is:
   - **a.** ash
   - **b.** pine
   - **c.** oak
   - **d.** cherry

. American hardwoods have distinctive characteristics that result in one-of-a-kind applications. In contrast to American hardwoods, tropical species:
   - **a.** have an appearance that is more uniform and patternless
   - **b.** have similarly varied grain patterns
   - **c.** are less durable
   - **d.** have more growth rings

. The Planetree model for health care design:
   - **a.** recommends building antiseptic-looking facilities
   - **b.** suggests the use of wood furnishings to give hospitals a more home-like feel
   - **c.** assigns points for green and sustainable building practices
   - **d.** develops designs that save money and increase health care provider convenience

4. American hardwoods are considered sustainable because:
   - **a.** U.S. hardwood forests grow far more wood than is harvested every year
   - **b.** Use of hardwoods are encouraged by LEED
   - **c.** Natural materials enrich the built environment
   - **d.** Climate and soil favor different species

5. Compared to other flooring materials, hardwood floors have:
   - **a.** high life-cycle costs
   - **b.** one of the lowest life-cycle costs
   - **c.** higher life-cycle costs than synthetic flooring products
   - **d.** lower upfront costs

6. Using regionally sourced hardwoods in a health care project
   - **a.** can help control material costs
   - **b.** is a sustainable design strategy
   - **c.** can earn LEED credit
   - **d.** all of the above

7. For hardwood products in health care settings, it is recommended to:
   - **a.** apply waterborne finish onsite
   - **b.** field-apply linseed oil
   - **c.** finish offsite at the manufacturer
   - **d.** use wax made from natural products

8. Used predominantly in ultra high-use commercial settings, they provide an extremely hard, durable barrier to dirt, moisture and wear:
   - **a.** surface finished floors
   - **b.** acrylic impregnated floors
   - **c.** stains
   - **d.** wax coatings

9 In flat- or plain-sawn hardwood boards, growth rings are parallel to the board's surface and create:
   - **a.** a vertical and uniform grain pattern
   - **b.** accentuated vertical or "straight" grain patterns
   - **c.** narrow boards
   - **d.** distinctive flame-shaped, arch or cathedral grain pattern

10. One aspect of keeping hardwood floors clean is to:
   - **a.** dust frequently with a micro fiber mop
   - **b.** use hot, soapy water
   - **c.** sponge down with disinfectant
   - **d.** use a wax buffer system

The
Hardwood
Council

The Hardwood Council serves architects, designers and builders by providing useful information about American hardwoods in sustainable design and building. As an independent, nonprofit organization, the Council advances better understanding of hardwood flooring, furniture, cabinetry and millwork, without bias toward specific products or manufacturers.

The Council's Web site, www.hardwoodcouncil.com, offers basic information about dozens of American hardwood species, background on sustainable forestry, and overviews of sustainable specifying, design, installation and finishing practices.

For more information about the Hardwood Council, and American hardwoods, please visit www.hardwoodcouncil.com or contact us at:
The Hardwood Council, 400 Penn Center Boulevard, Suite 530, Pittsburgh, PA 15235

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Photo credits: Atrium Skylight at the Gaylord Texan Resort & Convention Center. Architect: Hnedak Bobo Group of Memphis, TN. Courtesy The Vistawall Group.

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Western Red Cedar Shakes and Shingles: A Sustainable, Versatile Roofing Choice

Durable and weather resistant, cedar roofs blend natural aesthetics with performance

Provided By: The Cedar Shake and Shingle Bureau

By Lynne Christensen, MBA, CAE

Western Red Cedar, a wood commonly found on the North American West Coast, is a popular source of manufactured cedar shakes and shingles. With its warm, aesthetic appearance, Western Red Cedar (Thuja plicata) has long been used for roofing and sidewalls, because of its durability and weather-resistance, and good thermal insulating properties. This even-grained wood ranges in color from light blond to deep chocolate brown, and weathers gracefully to shades of gray.

Manufactured primarily in British Columbia, Canada, and Washington State, Western Red Cedar shakes and shingles combine a traditional look with reliable performance, and provide an environmentally sound option for roofing, siding, and building exteriors.

Cedar is an extremely versatile product that offers many design choices for residential, commercial, and institutional structures, including single and multi-family homes, office buildings, retail, churches, band shells, hotels, and historic buildings. A rustic mountain cabin or California bungalow, for example, would benefit from the handsplit and resawn shake look. A Victorian or Cape Cod style home with a tailored appearance might use a shingle or tapersawn shake roof. Regardless of the style or application, cedar shakes and shingles should be specified and installed correctly. This article will discuss the qualities of cedar shakes and shingles, and characteristics that are important when designing and specifying them for roofing and siding applications.

Architect: Alexander Bogaerts & Associates
Photo: Courtesy Victor International Corporation

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Western Red Cedar Shakes and Shingles: A Sustainable, Versatile Roofing Choice.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 215, then follow the reporting instructions on page 225 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Explain the benefits and characteristics of cedar shakes and shingles*
- *Understand why cedar shakes and shingles are fire retardant and hurricane resistant*
- *Identify wildfire mitigation strategies*
- *Discuss the criteria for maintaining a long-lasting cedar roof*

Shakes and Shingles are Different

Shakes and shingles are two distinct product types. Cedar shakes used for roofing are available in two distinct kinds: handsplit and resawn OR tapersawn; shakes are either tapered or constant in thickness, depending upon product type. Cedar shingles are sawn on both sides, tapered, and may be used for both roofing and siding. As they age, cedar shakes and shingles generally turn from reddish brown in color to gray.

Shakes

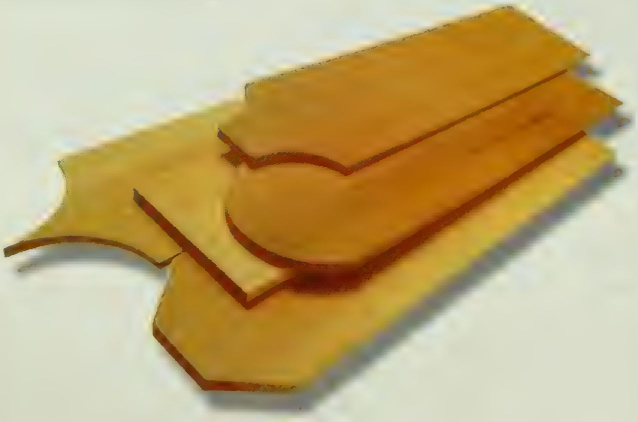
Handsplit and resawn shakes are split faced, exposed with a naturally rustic appearance, and sawn on the back. The most common sizes are 18 inch and 24 inch nominal lengths. Butt thicknesses range from 3/8 inch to over 2 inches.

Tapersawn shakes are sawn on both sides for a semi-textured look with a stronger shadow line than shingles. The most common are 18 inch and 24 inch nominal lengths. Butt thicknesses range from 5/8 inch to 1 1/2 inch.

Courtesy of Cedar Shake and Shingle Bureau

Shingles

Shingles are sawn on both sides for a tailored appearance. They are available in several sizes: 16 inches or Fivex; 18 inches or Perfection; and 24 inches or Royal nominal lengths. The butt thickness is gauged using a stack of shingles to meet the proper measurement. Rebutted and rejointed (R&R) sidewall shingles are remanufactured on all four sides to ensure square butts and parallel edges for a superior appearance. Faces can be also obtained in sanded or machine profiles. Fancy butt shingles are available in a variety of designs and are useful in creating a variety of sidewall pattern designs.


Courtesy of Cedar Shake and Shingle Bureau

Prefinished Rebutted and Rejointed Sidewall Shingles

Prefinished sidewall shingles make a wise, low maintenance sidewall system. Specifying prefinished shingles depends upon project needs. Three basic types of prefinish systems are available: preprimed, prestained, and opaque. Coatings and finishes are classified as film forming or penetrating. Paint and solid body stains are film forming. Penetrating stains penetrate wood. Latex stains are classified as film forming although some formulations are showing better penetration characteristics. Latex stains are evolving. Custom colors as well as product and coating manufacturers' warranties are available.

- Preprimed: Kiln dried, rebutted and rejointed shingles should be coated on all surfaces with an alkyd oil, stain blocking primer at the manufacturer's recommended spread rates. Latex stain blocking primers are evolving.
- Prestained: Penetrating stains have been traditionally oil or alkyd oil-based. New latex formulations are being developed which show better penetration characteristics than older latex formulations. Pre-staining coats the shingle on all surfaces. Penetrating stains are available in clear, lightly pigmented and semi-transparent. Alkyd oil refers to a type of durable synthetic resin or coating.
- Opaque: Opaque color finishes are applied to the shingle after an alkyd oil stain-blocking primer has been applied to all surfaces of the shingle. Two or three coat systems are available. Factory finish equipment generally uses different formulations than over-the-counter solid body stains and paints. The factory finish topcoats are referred to as a finish coat.

If adding a coating at the job site, the base coat should contain a stain-blocking primer. The primer is to be applied to all surfaces of the shingle after the shingle has achieved equilibrium (12-14 percent and less moisture content in most of North America). Applying a coating on wood which is green (above the equilibrium point) will result in premature coating failure.

All forest products, including Western Red Cedar, contain extractives (tannins). Extractives are either water borne or solvent borne. Western Red Cedar contains water borne extractives. Extractive bleeding (stains) on the surface of Western Red Cedar occurs when extractives are dissolved and leached from the Western Red Cedar by water. The water then moves to the finished/coated surface, evaporates and leaves the extractive discoloration which may be dark red or reddish-brown in appearance. Extractive bleeding is easily prevented when the proper primer and topcoats are applied using the coating manufacturer's recommended spread rates, time of application (i.e., not too cold/hot or in direct sunlight). Environment and moisture content level should be considered during the proper application phase.

Wildfire mitigation should include residential fire prevention strategies for building design, construction materials, and plant selection.

Wood should not be left to weather prior to applying a coating; exposure to the weather causes photodegradation of the top layer of the wood. The color changes as a result from the decomposition of extractives at the surface. The sunlight will decompose the lignin (the natural "glue" which holds wood fiber together) leading to a poorer adhesive bond when a film forming coating product is used. Photodegradation is the chemical transformation of a compound into smaller compounds caused by the absorption of ultraviolet, visible, or infrared radiation (light).

Proper preparation of the shingles and application of a good quality coating or finish are key to good coating performance and life.

Pressure Impregnated Treated Products

Both Premium and Number One Grade products are available with pressure impregnated fire retardant or preservative treatment. Both treatments are not available in the same product. This type of treatment is not a topical spray-on and will not leach out after a rainstorm. Pressure impregnated treated products are identified by the treatment label attached to the bundle strapping.

ressure Impregnated Fire Retardant Treated edar Shakes and Shingles

1 areas prone to wildfires, pressure impregnated fire retardant treated cedar shakes and hingles are a wise choice. Through pressure injection at the factory, a special fire etardant treatment is forced into the cells of the wood. Kiln drying solidifies the formula nd locks in the fire protection. For roofs, there are Class A, Class B, Class C, and unrated oofing systems. Cedar shake and shingle roofs exist in all these classifications. These lasses are the same for all roofing materials, including asphalt, metal and concrete tile.

Class A is appropriate for institutional applications, such as hospitals and correctional facilities. This classification uses a Class B fire retardant treated product along with a rated fire retardant fiberglass cap sheet underlay. A Class A roofing system is effective against severe fire exposures. Under such exposures, roof coverings are:

- Not readily flammable
- Afford a fairly high degree of fire protection to the roof deck
- Do not slip from position
- Pose no flying brand hazard

Class B is often used in apartment buildings, condominiums, commercial buildings, and dwellings in wildland interface areas. Class B fire retardant treatment is effective against moderate fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a moderate degree of fire protection to the roof deck, do not slip from position and pose no flying-brand hazard.

Class C is typically used for single-family residences and duplexes, where fire retardant roofing is desired. This is a product that is effective against light fire exposures. Under such exposures, roof coverings of this class are not readily flammable, afford a measurable degree of fire protection to the roof deck, do not slip from position and pose no flying-brand hazard.

S. building codes require that fire retardant treated wood roofing products are subjected rigorous fire retardancy tests. The Spread of Flame test is performed to measure the read of flame over a deck and the Intermittent Flame, Burning Brand and Flying Brand sts are completed before and after both accelerated weathering and long term eathering of one, two, three, five, and ten years.

Wildfire mitigation should include residential fire prevention strategies for building design, construction materials, and plant selection. Vegetation management practices, including sensible landscape choices, brush setbacks, firebreaks and forest debris clearing, are critical to preventing and minimizing firestorm damage. Local building officials have specific information regarding jurisdictional regulations and these should be included in project specifications.

Pressure Impregnated Preservative Treated Cedar Shakes and Shingles

For long material life span in areas of high humidity, pressure impregnated preservative treated cedar shakes or shingles may be specified. This product will help prevent moss and mildew build up.

Product Grading

The Cedar Shake and Shingle Bureau (CSSB), an industry organization, created and updates the industry's grading rules, known as CSSB-97. These CSSB-97 grading rules are incorporated into the U.S. national building codes International Building Code and International Residential Code, as published by the International Code Council. These are the standard reference guides for commercial and residential projects and have been adopted by most states.

The CSSB maintains a quality control program for grading and inspections. Trained professionals perform random, unannounced inspections of member manufacturers' sites. These inspections ensure that grading rules are applied for product consistency. The CSSB's Cedar Quality Auditor operates separately from the inspectors, also performs unannounced mill visits, and provides a second set of eyes on the quality control procedures at manufacturers' locations.

The Importance of the Label

Product labels are inserted under each bundle strap and contain the following information: brand name, product grade, product type, independent, third party quality control agency, mill name and contact information, product dimensions, building code compliance numbers, product performance tests the material has passed, UPC code, summary application instructions (usually on reverse), and coverage chart showing bundles per 100 square feet and recommended exposure. Cedar shake and shingle bundles are measured in squares, the amount required to cover 100 square feet.

Labels that state "inspected by in-house inspectors" do not have an outside party inspecting the product, meaning that a company employee has inspected his/her own product.

Design and specification documents should call for cedar shakes and shingles in terms that are more specific than "blue label cedar shingles." There are dozens of blue labeled uninspected products that have labels similar to those used by third party inspected mills. Quality levels on uninspected products are not monitored and these products are not accepted by building code officials.

Grain

The terms edge grain, vertical grain, and flat grain are used when comparing products and grades. Edge grain and vertical grain refer to annual growth rings for a 45 to 90 degree angle with the product surface. Flat grain refers to product that has annual growth rings that form less than a 45 degree angle with the product surface. Both top grades for shakes (Premium Grade) and shingles (Number One Grade) do not allow any flat grain in the bundle. Up to 20 percent flat grain only is permitted in each Number One Grade shake bundle.

Top quality, edge or vertical grain cedar roofing and siding materials are available in a variety of product types. Lower grades of products allow a mixture of edge and flat grain, knots, and other imperfections. Lower grades are acceptable for some projects; however, this should be verified against installation exposure requirements and local building codes.

Product Qualities and Characteristics

Cedar offers a full range of product benefits. It has high insulation value, which reduces energy consumption throughout the year. Many types of cedar shakes and shingles have been tested and proved to be resistant to wind, impact and fire.

Fire Resistance

Class A, B, and C pressure impregnated fire retardant treated roofing systems are available with cedar shakes and shingles. (See earlier section on pressure impregnated fire retardant treated products).

Wind Resistance

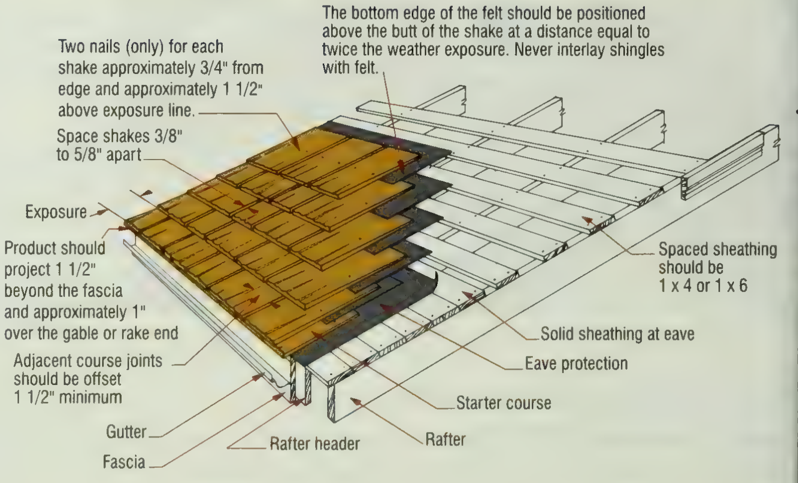
Cedar shakes and shingles offer outstanding hurricane-force wind resistance, as proven through UL-1897 uplift resistance testing using parameters for a test model home located in Dade County, Florida, the highest U.S. standard for wind resistance requirements. These test results are applicable to CSSB member product only:

- Shakes and shingles have been subjected to the UL 1897 fourth edition "Uplift tests for roof covering systems" with exemplary results. The classification for uplift resistance is expressed in pounds per square foot. The test method subjects a minimum 10 by 10 ft. test sample to various short term (1 minute interval) static pressures which represent the uplift forces imposed on roofing systems securement to a specified roof deck when exposed to high velocity winds.
  In other words, it tests how well shakes and shingles hold up when subjected to high winds. It measures the degree to which the roofing material is uplifted from the roof deck.

A subsequent report by a Florida Registered Professional Engineer converted the PSF numbers into miles per hour using the analytical method for wind design of roof cladding set forth in Section 6 of ASCE 7-98 (American Society of Engineers).

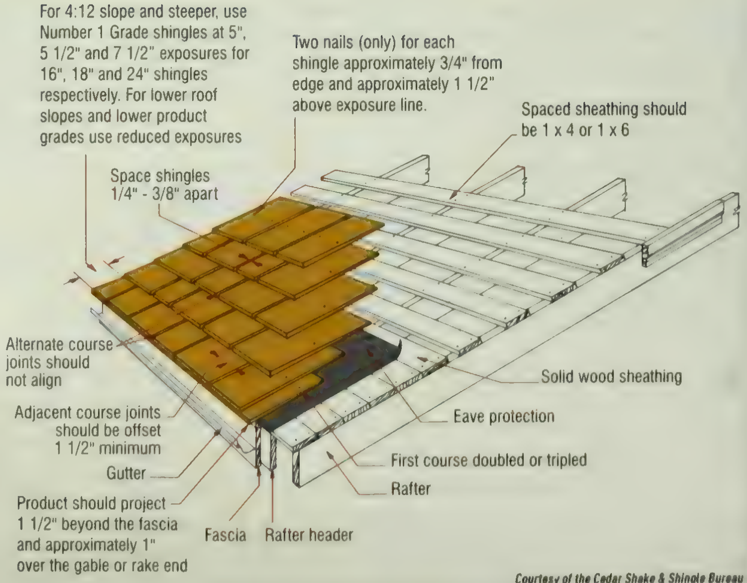
It should be noted that these calculations were conducted for a specific house in the Dade County area of Florida. When converting from PSF to MPH using ASCE 7-98, results will vary depending on many factors including building height, location, roof slope, environment, etc. Be advised that all design parameters, assumptions and limitations of use set forth in the Florida engineer's report are necessary components of further interpretation. These test results exceed Dade County, Florida wind resistance requirements testing protocol PA 100-95. CSSB member products are accepted by Dade County, Florida as an accepted roofing material. ■

Shake Application


The bottom edge of the felt should be positioned above the butt of the shake at a distance equal to twice the weather exposure. Never interlay shingles with felt.
Two nails (only) for each shake approximately 3/4" from edge and approximately 1 1/2" above exposure line.
Space shakes 3/8" to 5/8" apart
Exposure
Product should project 1 1/2" beyond the fascia and approximately 1" over the gable or rake end
Adjacent course joints should be offset 1 1/2" minimum
Gutter
Fascia
Rafter header
Rafter
Starter course
Eave protection
Solid sheathing at eave
Spaced sheathing should be 1 x 4 or 1 x 6

Courtesy of the Cedar Shake & Shingle Bureau

Shingle Application


For 4:12 slope and steeper, use Number 1 Grade shingles at 5", 5 1/2" and 7 1/2" exposures for 16", 18" and 24" shingles respectively. For lower roof slopes and lower product grades use reduced exposures
Two nails (only) for each shingle approximately 3/4" from edge and approximately 1 1/2" above exposure line.
Spaced sheathing should be 1 x 4 or 1 x 6
Space shingles 1/4" - 3/8" apart
Alternate course joints should not align
Adjacent course joints should be offset 1 1/2" minimum
Gutter
Product should project 1 1/2" beyond the fascia and approximately 1" over the gable or rake end
Fascia
Rafter header
Rafter
First course doubled or tripled
Eave protection
Solid wood sheathing

Courtesy of the Cedar Shake & Shingle Bureau

CLICK FOR ADDITIONAL SUPPLEMENTAL READING
The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0611cedar-1.asp***

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LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Explain the benefits and characteristics of cedar shakes and shingles*
- *Understand why cedar shakes and shingles are fire retardant and hurricane resistant*
- *Identify wildfire mitigation strategies*
- *Discuss the criteria for maintaining a long-lasting cedar roof*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 171. Follow the reporting instructions, answer the test questions, and submit the form. Or use the Continuing Education self-report form on *Record's* web site—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Which product is split faced, exposed with a naturally rustic appearance, and sawn on back?
- **a.** Tapersawn shake
- **b.** Shingle
- **c.** Handsplit and resawn shake
- **d.** Machine grooved shingle

2. Which statement is not true about tapersawn shakes?
- **a.** They are sawn on both sides for a semi-textured look
- **b.** Butt thicknesses range from 5/8 inch to 1 1/2 inch
- **c.** They are only available in 16 inch lengths, or a Fivex
- **d.** They create a stronger shadow line than shingles

3. Which of the following is not a characteristic of a cedar roof:
- **a.** Needs frequent full replacement
- **b.** Highly resilient in earthquakes
- **c.** High insulation value
- **d.** Resistant to wind, impact, and fire

4. Three types of prefinished sidewall shingles are:
- **a.** Preprimed, postprimed, dormer style
- **b.** Prestained, field primed, gable enders
- **c.** Shellac, waterproofed, alkyd oil primed
- **d.** Preprimed, prestained, and opaque

5. Which process is used to make cedar shakes and shingles fire retardant?
- **a.** Topical spray on
- **b.** Painted on
- **c.** Hose misting
- **d.** Pressure impregnated treated

6. True or False: Pressure impregnated preservative treated cedar shakes and shingles will prevent moss and mildew build up.
- **a.** True
- **b.** False

7. When comparing products and grades, what describes grain types of cedar shakes and shingles?
- **a.** Vertical, edge, flat
- **b.** Irregulars, 15 percent, premium
- **c.** Number One, Fivex, Royals
- **d.** Class A, Class B, Class C

8. Which is not an acceptable fastener type for cedar shakes and shingles?
- **a.** Aluminum nails
- **b.** Electrogalvanized nails
- **c.** Stainless steel (type 304 or 316) hot dipped zinc coated
- **d.** Other fasteners as approved by local building codes

9. Which is not a mitigation factor when designing structures in areas prone to wildfires?
- **a.** The freeze thaw cycle
- **b.** Vegetation management practices
- **c.** Forest debris clearing
- **d.** The Flying Brand test

10. Staggered butt design is achieved by:
- **a.** Lengthening the exposure on no more than 20 percent of shingles
- **b.** Using different length shingles for a product mix
- **c.** Shortening the exposure to less than the greater maximum exposure
- **d.** Mixing flat grain and edge grain products

Cedar Shake & Shingle Bureau

www.cedarbureau.org

The Cedar Shake and Shingle Bureau (CSSB) was founded in 1915 and is the industry's trade association representing over 375 members. It offers AIA continuing education seminars, free technical advice and literature, as well as field representation.

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Green Building: Essential Design Strategies for a Sustainable Future

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CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Green Building: Essential Design Strategies for a Sustainable Future.** To earn one AIA/CES Learning Unit, including one hour of health, safety, welfare credit, answer the questions on page 191, then follow the reporting instructions on page 191 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

Evaluate how to reduce environmental impact and building energy costs through sustainable design

Identify performance characteristics of solar insulating glass

Analyze the sustainability benefits of a recycling program for mineral fiber ceiling tiles

Explain why water conservation is important to the environment

Implement water conservation strategies with water efficient plumbing fixtures and valves, including high efficiency toilets, dual flush toilets, waterless urinals, and electronic faucets

Green Building: Essential Design Strategies For a Sustainable Future

Leveraging Environmentally Efficient, Economic Solutions with Solar Insulating Glass, Ceiling Recycling Programs, and Water Conservation

"This is an opportunity for bipartisanship, an opportunity to find our better selves, and in rising to meet this challenge, create a better brighter future – a future worthy of the generations who come after us and who have a right to be able to depend on us."

- Former Vice President Al Gore, policy address on Solving the Climate Crisis, New York University School of Law, September 18, 2006

By: Barbara A. Nadel, FAIA

Buildings have an average lifespan ranging from 50 to 100 years. Recent studies indicate that buildings are the biggest source of energy use and greenhouse gas emissions, which in turn impact the world's climate changes. Most architects know that buildings can be designed to operate with far less energy than many U.S. buildings are currently consuming. Design professionals and the building industry are developing innovative approaches to improve energy efficiency and reduce annual operating costs to building owners through advanced technology and a variety of sustainable design practices.

"Benefits such as energy, water and operational cost savings, improved air quality, and increased productivity are drawing more attention to green building issues. Congressional leaders are discussing how to best support sustainability initiatives through legislation," says Don Horn, AIA, LEED-AP, Director, Sustainable Design Program, Office of Applied Science, U.S. General Services Administration Public Buildings Service, Seattle, Washington.

Benefits such as energy, water and operational cost savings, improved air quality, and increased productivity are drawing more attention to green building issues.

Architects are well positioned to educate the public, facility managers, building owners, and elected officials about the clear economic benefits of sustainable design. Environmental design best practices and goals are achieved through attention to proper siting, building form, glass properties and location, material selection, heating, cooling, ventilation, day-lighting, and increasingly, water conservation through efficient plumbing fixtures.

"Conservation of natural resources is an imperative for the socially responsible architect. Addressing sustainability requires that we redefine boundaries of traditional practice. The idea of an isolated building on a site is no longer acceptable. Buildings belong to a larger community and must begin to support and sustain our environment," observes Harry Warren, AIA, Design Principal, Cannon Design, Grand Island, New York.

Conservation of natural resources is an imperative for the socially responsible architect. Addressing sustainability requires that we redefine boundaries of traditional practice.

[illegible]® Theatre, Architect:
Gere Dismer Architects
Courtesy of Oldcastle Glass®

This article will explore avenues for increasing sustainability in building design through use of solar insulating glass, recycling programs for mineral fiber ceiling panels, and water conservation strategies with efficient fixtures. Case studies from public agencies and private sector practitioners will illustrate how these principles are being applied in civic facilities, universities, nonprofit organizations, and the hospitality industry.

Solar Insulating Glass

Architectural glass is a highly visible building envelope design component, especially for commercial and public facilities. As sustainability and energy costs take on greater importance for building owners, environmental performance ranks high among the many design and specification criteria used by architects when reviewing architectural glass options.

Solar insulating glass delivers several significant advantages, such as reducing glare, increasing thermal control and environmental comfort for building occupants, and generating savings on heating, ventilation and air conditioning (HVAC) equipment, as well as long term annual operational costs.

Characteristics of Insulating Glass

Insulating glass units are hermetically sealed combinations of two or more lites of glass separated by a dry airspace. They improve thermal performance, significantly reducing heat and air conditioning costs, and reduce interior condensation in cold climates. Insulating glass units are used in almost all exterior building applications, including fixed and operable windows, storefronts and curtain walls, sloped and overhead glazing and skylights, and in vision and spandrel (nonvision) locations.

Depending on the glass type used, insulating glass units can be designed for light and solar control, sound control, and ultraviolet screening (to reduce fading of materials and fabrics), hurricane, earthquake, and blast resistance, security, bullet resistance, and decorative applications. Insulating glass units are fabricated according to project specification. They can be constructed using a large variety of glass products to achieve desired aesthetic appearance, meet design criteria, building codes, and improve thermal control and building performance. Glass options include clear, low iron, Low-E, standard or high performance (spectrally selective) tints, reflective, silk-screened, spandrel, laminated, decorative, and wired glass. The glass lites of an insulating glass unit can be annealed, heat strengthened, tempered or laminated.

Standard one-inch insulating glass units generally consist of two lites of 1/4-inch glass and a nominal 1/2-inch air space. Custom insulating glass unit designs can be made in several glass thicknesses. Maximum sizes for insulating glass units are determined by several considerations including thickness, weight, aspect ratio, application, and load requirements.

Many insulating glass units are independently tested and certified according to North American standards for quality and performance, and pass the highest level (Class CBA) of the ASTM E773/E774 specification.

The tests are validated by the Insulating Glass Certification Council (IGCC), which sponsors the certification program in the U.S.

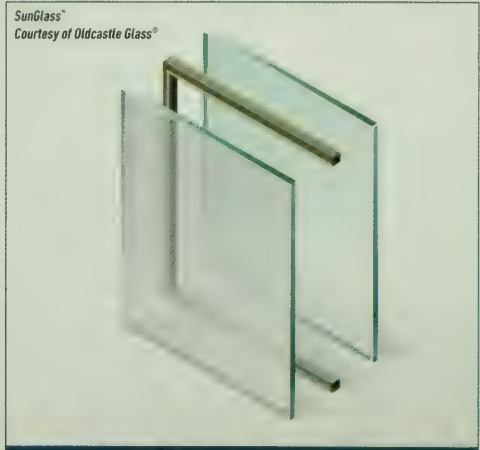
Low-E Coatings

By combining low-emittance (Low-E) coatings, standard and high performance tinted glasses, reflective coatings, silk-screened patterns, and laminated glass products, a variety of insulating glass configurations are available to meet a range of performance and aesthetic requirements. They can be designed to reduce heat loss and solar heat gain entering the building, with a minimal reduction of visible light transmittance.

Soft coatings are applied to the glass as a sputter coat, and are easy to scratch. Hard coatings are applied on a float glass by the manufacturer, and the process is embedded in the end product. Coatings applied at the factory to tempered glass and baked in produce post-temperable high performance coated glass. Most of these coatings perform as well as hard coats.

"Post-temperable Low-E coating technology has dramatically matured over the past few ears, affording unprecedented solar control erformance benefits. It is now possible for an nsulating glass unit to block 70 to 75 percent of the olar heat while passing 50 to 65 percent of the visible ight. By utilizing advanced solar control insulating lass in buildings, architects can achieve impressive nergy savings without compromising on aesthetics or esign," says Daipayan Bhattacharya, Vice President f Business Development and Technology, Oldcastle lass®, Inc., Santa Monica, California.

ow-emittance coatings are microscopically thin, rtually invisible, metal or metallic oxide layers eposited on a window or skylight glazing surface rimarily to reduce the U-factor by suppressing heat ow. The principal mechanism of heat transfer in ultilayer glazing is thermal radiation from warm urfaces to cooler surfaces. Coating a glass surface ith a low-emittance material reflects a significant amount of this radiant heat, thus lowering the total heat flow through the window. Low-E coatings are transparent to visible light, and opaque to infrared radiation. Different types of Low-E coatings have been designed to allow high solar gain, moderate solar gain, or low solar gain.


SunGlass™
Courtesy of Oldcastle Glass®

The Light to Solar Gain (LSG) value far outperforms solar control Low-E glass. The higher the LSG value, the better the glass performs at transmitting daylight and reducing heat gain from the sun.

In the summer, Low-E glass filters long-wave solar radiation, reducing solar heat gain as a result of the sun's direct rays. During the winter, Low-E glass lets in warm, short wave rays, and helps block the warm air inside, rather than allowing it to escape through the pane, so less heating is needed to maintain a comfortable environment. In addition to energy savings, Low-E reduces the amount of transmitted ultraviolet light, which can damage carpets, fabrics, and drapes.

The Light to Solar Gain (LSG) ratio is a common glass performance characteristic that measures potential environmental impact and performance and is used to compare glass products. LSG considers the percentage of visible light a glass transmits and the solar heat gain through the glass relative to the incident solar radiation.

An analysis indicates the value of some solar insulating glass products outperform high-performance solar control Low-E glass. The higher the LSG value, the better the glass performs at transmitting daylight and reducing heat gain from the sun. When three types of glass were tested for LSG, solar insulating glass showed an LSG value of 2.01, compared to high-performance Low-E glass at 1.44, and clear insulating glass at 1.12.

Colleges and Universities: Energy Management

The Minnesota State Colleges and Universities (MnSCU), representing 26 million square feet and one third of all the state's building square footage, is advancing energy efficiency on campuses through design and construction. "We are pursuing 'Benchmark, Monitor, Train, and Change' to get facility managers to seek areas where efficiency can be improved," says Sally Grans, AIA, System Director, Facilities Planning and Programming, Minnesota State Colleges and Universities, St. Paul, Minnesota.

Energy efficient practices being implemented include lowering overall campus temperatures, reducing temperature during unoccupied hours and in areas not used (by zoning); saving energy through Energy Star® programs, such as purchasing computers with sensors that trigger automatic shutdown when not in use; reducing energy using technology in plumbing, electrical (such as occupancy sensors), and HVAC systems; and operational equipment adjustments and routine maintenance (such as steam traps, filters, and pumps).

Public-private partnerships also play a role in setting an energy efficiency agenda for public buildings. "MnSCU is part of a group working with a private energy consultant and examining the alternative fuel sources needed to offset new buildings in a climate-neutral setting. We hope to bring forward to the 2007 legislative session language that will reduce the greenhouse gases in the proposed bonding bill," Grans adds.

Recycling Ceilings Preserves Natural Resources

The life cycle of a building and its related processes and byproducts are important components of the Leadership in Energy and Environmental Design (LEED®) green building rating system, sponsored by the U.S. Green Building Council (USGBC). The LEED®

rating system is a nationally accepted benchmark for design, construction, and operation of high performance green buildings.

Recycling ceiling panels is an environmentally sound approach to reusing natural materials that illustrates how innovative products can contribute to protecting the environment, by preserving natural resources and reducing the environmental footprint. Industry experts estimate that more than 30 million square feet of ceilings have been recycled since 1999.

Cradle-to-Cradle Cycles

Within the building industry, some manufacturers have implemented recycling programs that support cradle-to-cradle cycles, whose materials are perpetually circulated in closed loops. Maintaining materials in closed loops maximizes material value without damaging ecosystems. In contrast, cradle-to-grave products are dumped in landfills at the end of their useful lives. William McDonough, FAIA, of McDonough Braungart Design Chemistry, Charlottesville, Virginia, developed this approach to create products and systems that contribute to economic, social, and environmental prosperity.

Ceiling manufacturers have developed innovative approaches and products to advancing sustainability through a multi-phased, closed-loop process. The net result of such programs encourages industry innovation and reduces the environmental impact of building materials.

- **Design** of new ceilings includes renewable raw materials, reuse of post-consumer and post-industrial waste materials.
- **Manufacturing** recycles in-process scrap and process water, so that minimal water is discharged. When multiple manufacturing locations are available, transportation costs and environmental impact are reduced.
- **Installation** time can be decreased with minimal packing material. Packaging materials can contain 30 to 40 percent recycled content.
- **Indoor Environmental Quality** is enhanced when sustainable ceiling products are used, resulting in low emissions. Other potential advantages include acoustical performance, reduced glare, and lower energy costs.
- **Maintenance** is minimal because of easy replacement. Sustainable tiles are washable, soil resistant, and can inhibit or retard mold and mildew on the ceiling surface.
- **Reclaiming** old tiles for a recycling program is done by the manufacturer, who covers the costs.
- **Recycling** programs are national in scope, and can cover all ceilings and suspension systems, use recovered material to make new ceilings, and less virgin materials.

"An effective ceiling recycling program is designed to reduce the impact on the environment by redirecting used ceiling tiles from landfills back to the manufacturer, thereby creating a closed-loop process and offering a valuable end to what typically would have been thrown away," says Anita Snader, Associate Marketing Manager, Environmental Programs, Armstrong Ceiling Systems, Lancaster, Pennsylvania.

Disposing of old mineral fiber ceilings through a recycling program has several benefits. Owners can avoid landfill fees, dumpster, handling and transportation costs, if ceiling tiles are picked up by designated contractors. During demolition, removing old ceilings for recycling provides an early view of potential problems, structural issues, and abatement needs, and an orderly ceiling removal eliminates confusion and space limitations. Recycling makes less of a landfill impact, preserves natural and energy resources, and saves raw materials. Recycling old ceilings may be as fast as dumping them, with little adverse impact on demolition schedules.

Sustainable Ceiling Products

Some mineral fiber ceilings, suspension systems, and recycling programs can help achieve sustainable goals, especially when applied to LEED® ratings and credits in new construction (NC), existing buildings (EB) and commercial interiors (CI), in the energy and materials categories.

As a rapidly renewable resource, bamboo panels are sustainable.

To optimize energy performance, high light reflectance ceilings provide more workplace luminance with fewer luminaires, and they meet the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE) standard by the required 20 percent for new buildings and 10 percent for renovations.

Mineral fiber ceilings offer several benefits under the Materials and Resources LEED® category:

- **Construction Waste Management:** A closed-loop recycling program reclaims and reuses old mineral fiber ceilings from renovation projects.
- **Recycled Content:** Ceilings that contain high levels of recycled content, either post-industrial waste or post-consumer products, fall into this category. The amount of recycled content varies by product; however, the range includes mineral fiber (22 to 82 percent), fiberglass (40 percent), wood (45 percent), metal (25 percent), and suspension systems (25 percent).
- **Local/Regional Materials:** Multiple plant locations reduce the environmental impact of transportation from manufacturing facilities to building projects.
- **Rapidly Renewable Materials:** Mineral fiber ceilings contain cornstarch, a rapidly renewable material. Some ceiling tiles reuse post-consumer and post-industrial waste. Among the materials often used for recycled ceiling products are cornstarch, mineral wool (from a steel industry by-product), recycled paper (such as newspapers and telephone books), perlite (a naturally mined material, and recycled ceilings (from renovation projects).

Bamboo: Innovative Use of a Renewable Material

Vertically grained bamboo ceiling panels feature the inherent characteristics of natural bamboo to help create a warm ambiance and a memorable design statement. As a rapidly renewable resource, bamboo panels are sustainable, and can contribute to LEED® credits under the Materials and Resources category.

The natural look of bamboo ceilings is suitable for retail, hospitality, healthcare, higher education, office environments, lobbies, entrances, and conference rooms. Some bamboo ceiling products offer narrow reveals that minimize the grid, creating a more monolithic appearance than with other suspended ceilings. Perforated and unperforated options are available, with perforated ceilings providing acoustical control when used with an acoustical infill pad.

Minnesota's Sustainable Design Guide

The State of Minnesota's Sustainable Design Guide (www.msdg.umn.edu) educates architects, building owners, occupants, educators, students, and the public, and describes many environmental goals for state projects. "These Guidelines and the new State of Minnesota Buildings, Benchmarks, and Beyond are a constant reference for us, as illustrated in our DNR Windom Consolidated Headquarters, which was a pilot project discussed on the website," says Edward J. Kodet, FAIA, Principal, Kodet Architectural Group, Minneapolis, Minnesota.

"We routinely use sustainable materials in our educational facilities, including those from recycled materials, with low environmental impact, and those requiring minimal environmental costs to manufacture. We maintain a log of materials and their response to environmental impact," Kodet says.

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0611green-1.asp***

To receive AIA/CES credit, you are required to read this additional text. The quiz questions below include information from this online reading.

AIA/ARCHITECTURAL RECORD **CONTINUING EDUCATION** Series

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Evaluate how to reduce environmental impact and building energy costs through sustainable design*
- *Identify performance characteristics of solar insulating glass*
- *Analyze the sustainability benefits of a recycling program for mineral fiber ceiling tiles*
- *Explain why water conservation is important to the environment*
- *Implement water conservation strategies with water efficient plumbing fixtures and valves, including high efficiency toilets, dual flush toilets, waterless urinals, and electronic faucets*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page XX. Follow the reporting instructions, answer the test questions, and submit the form. Or use the Continuing Education self-report form on *Record's* web site—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. Which statement describes the characteristics of solar insulating glass?
  a. Small hairline cracks can form under severe cold conditions
  b. It expands under prolonged high temperatures
  c. It reduces glare, increases thermal control and environmental comfort for building occupants
  d. Special window film is applied to the glass to reduce condensation in cold weather

2. What is the commonly used term that describes characteristics measuring environmental impact and glass performance?
  a. Solar Heat and Radiation Gain Coefficient
  b. Light to Solar Gain Ratio
  c. Visible Solar Light Transmittal Factor
  d. Infrared Radiation Exponent

3. Which term describes materials that are perpetually circulated in closed loops?
  a. Cradle-to-grave cycle
  b. Cradle-to-cradle cycle
  c. Industrial recycling
  d. Reclamation of industrial waste

4. Bamboo ceilings do not provide acoustical control due to their sound transmission ratings.
  a. True
  b. False

5. Which does not describe advantages of disposing of old mineral fiber ceilings through a recycling program?
  a. During demolition, removing old ceilings provides an early view of potential problems
  b. Owners can avoid dumpster fees, handling and transportation costs
  c. Recycling always requires long lead schedules for designated pick-ups
  d. Creates less of a landfill impact

6. What materials are most commonly used for recycled ceiling products?
  a. Mineral wool, vermiculite, cedar wood chips
  b. Baking soda, soy byproducts, vermiculite
  c. Crushed glass, telephone books, calcium sulfite
  d. Cornstarch, newspaper, perlite

7. Federal water energy mandates require which standard for toilet fixtures?
  a. 1.6 maximum gallons per flush
  b. 3.6 liters per flushometer
  c. 1.28 minimum gallons per flush
  d. 1.3 maximum gallons per flushometer

8. Which of the following is true for hardwired and battery operated faucets and flushometers?
  a. Battery operated products are driven by solar power
  b. Hardwired and battery operated fixtures have the same first costs
  c. Hardwired flushometers and faucets are best suited for new construction
  d. Batteries are generally changed on average every 5 years, based on 10,000 activations per month.

9. Which statement does not describe a High Efficiency Toilet?
  a. Flushes at 1.28 gallons per flush or less
  b. Offers two low water use flush settings
  c. Uses a minimum of 20 percent less water than a standard toilet
  d. Is a non-field adjustable fixture

10. Which of the following is true about water efficient fixtures?
  a. Dual flush toilets offer a low water use flush setting of between .8 to 1.6 gallons per flush
  b. Dual flush toilets save water by offering two settings, for manual and automatic
  c. Waterless urinals use cartridges that are replaced after about 10,000 uses
  d. A pressure assisted toilet uses a flushometer to create a siphonic flushing action

Barbara A. Nadel, FAIA, principal of Barbara Nadel Architect, in New York City, frequently writes about design and technology. She is the author and editor-in-chief of *Building Security: Handbook for Architectural Planning and Design* (McGraw-Hill, 2004).

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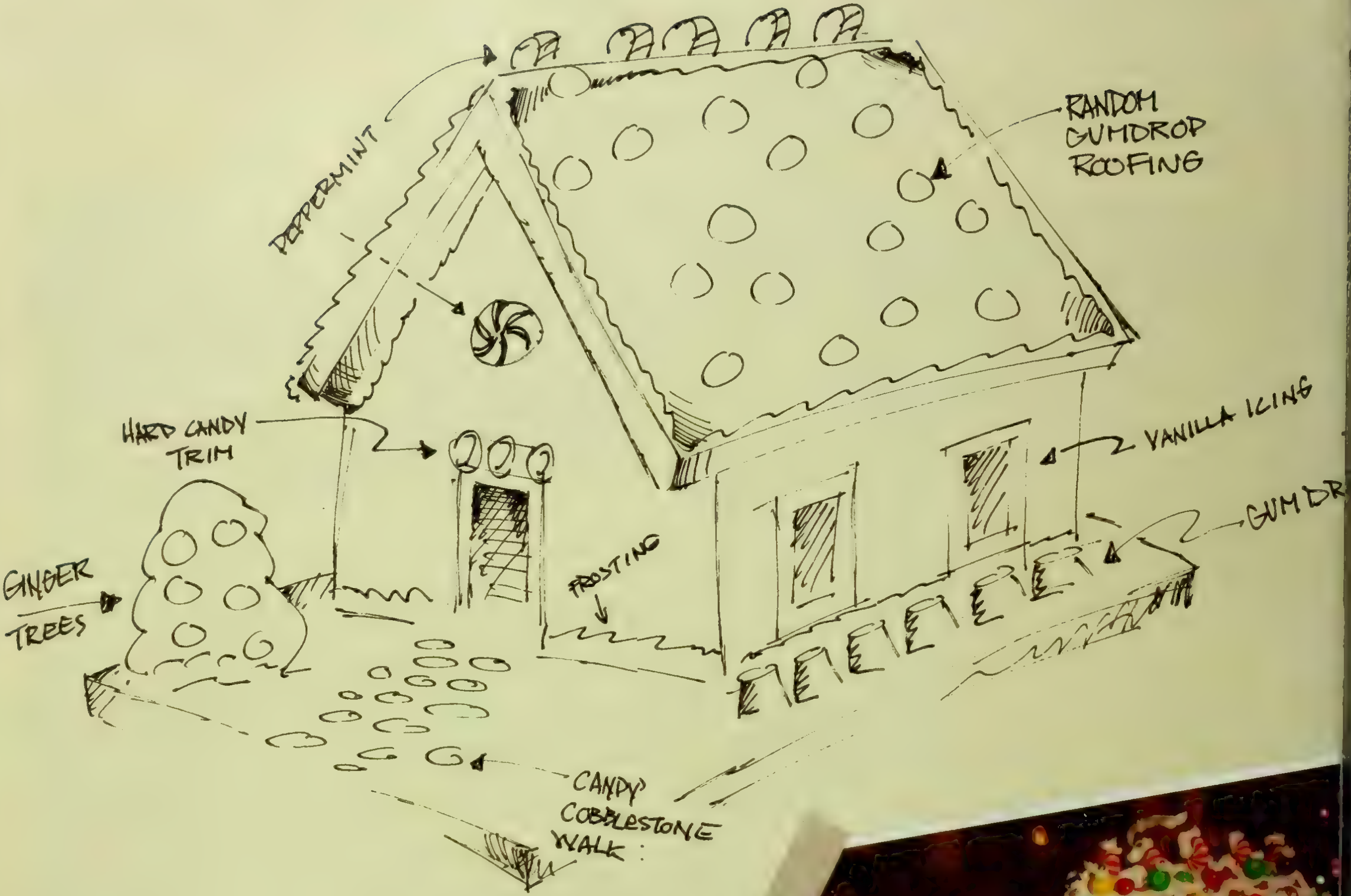

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Green Building: Essential Design Strategies For a Sustainable Future

PRODUCT REVIEW

rmstrong Ceiling Systems

ATURAL, EXOTIC LOOK OF BAMBOO NOW AVAILABLE NEW WOODWORKS® CEILINGS FROM ARMSTRONG

ustainable, Environmentally Friendly Panels
an Also Help Contribute to LEED® Credits

he natural, exotic look of bamboo is now available in the WoodWorks® family f ceilings from Armstrong.

e new vertically grained WoodWorks Bamboo ceiling panels feature all the herent characteristics of natural bamboo to help warm a space and create a emorable design statement. And, because bamboo is a rapidly renewable source, the sustainable, environmentally friendly panels can also help ntribute to LEED® credits (MRc6).

easuring 2'x 2' in size, WoodWorks Bamboo ceiling panels are offered in o distinctive colors: Patina, a standard option, and Native, a premium option. th are well-suited for use in a variety of applications ranging from retail, spitality, healthcare, higher education and office environments to lobbies, trways and conference rooms.

amboo Panels Available with Vector™ Edge
addition, Bamboo panels are available in two edge details: tegular and ctor. The patented Vector edge produces a sleek 1/4" reveal that minimizes e grid, creating an upscale visual that is more monolithic in appearance than dinary suspended ceilings.

e panels are also available perforated and unperforated. The perforated tion provides acoustical control when used with an acoustical infill pad. e panels can be installed in a variety of standard suspension systems.

al Wood Veneer Options Added to WoodWorks Ceiling Family
e company has also added darker, real wood veneer options to its odWorks family of ceilings with the additions of Natural Variations Dark erry and Constants Walnut. Designers can now choose from nine veneers d 32 standard wood ceiling options.

r additional information on new WoodWorks Bamboo ceilings, ll 1-877-ARMSTRONG, (1-877-276-7876), or visit armstrong.com/woodworks.

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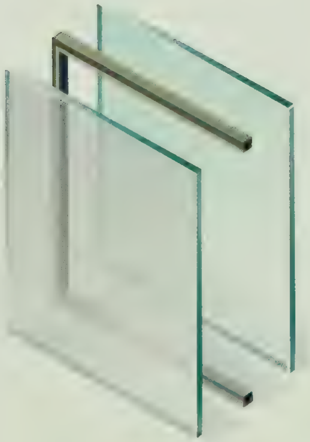
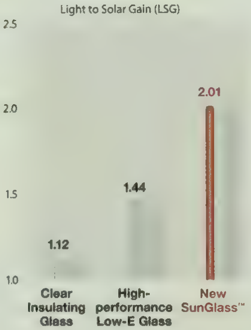
Exclusive, new SunGlass™ Solar Control Glass delivers the beauty of the sun without the heat. Now architects can specify a neutral color glass that invites the sun in without making building occupants sweat. That's because SunGlass™ delivers a combination of unprecedented solar control and visible light transmittance. It's the look you want with the performance you need. SunGlass™ also leaves owners smiling too—with serious reductions in energy costs and HVAC equipment expense. What's more, SunGlass™ reduces harmful UV rays so interior furnishings will look better, longer. And SunGlass™ is only the beginning of the most comprehensive collection of architectural glass, curtain wall and operable windows. To learn more, call 1-866-OLDCASTLE (653-2278) or visit us online at the new www.oldcastleglass.com

CIRCLE 115





The Light to Solar Gain (LSG) value of SunGlass™ far outperforms high-performance solar control Low-E glass. The higher the LSG value, the better the glass performs at transmitting daylight and reducing heat gain from the sun.

Sloan Valve

OPTIMA PLUS® ERF SERIES FAUCET DEPLOYS PATENTED RF TECHNOLOGY

Sloan Valve Company's new Optima Plus® ERF Series sensor-operated faucet uses patented RF technology. The wireless connectivity of the ERF-885 faucet makes installation easy in both new and retrofit applications while eliminating vandalism to wiring.

The ERF-885 reduces false detection by combining both passive infrared and active infrared technologies. The unit ships complete with spout, sensor, control module, mounting hardware, and either a 4" or 8" trim plate. Audible signals emitted by the low-frequency, low-power RF faucet provide installation guidance and diagnostic cues such as a low-battery alert. Expected battery life is six years.

Sloan's ERF-885 faucet complements the company's growing line of water-saving, electronic plumbing fixtures.

Sloan Valve Company, the world's leading manufacturer of water-conserving plumbing systems, is celebrating its 100-year anniversary in 2006. Headquartered in Franklin Park, Illinois, the company manufactures plumbing products and accessories for commercial, industrial, and institutional markets worldwide.

For more information on Sloan's ERF-885 faucet, contact Sloan Valve Company at 10500 Seymour Avenue, Franklin Park, IL 60131. Telephone 800-9-VALVE-9 (800-982-5839, ext. 5609), fax 800-501-3989 or visit www.sloanvalve.com.

CIRCLE 114

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION

Program title: **"American Hardwoods Enhance Healthy, Healing Spaces," (11/06, page 205)** 116SPONA

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5.	a	b	c	d	e	**10.**	a	b	c	d	e

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Program title: **"Green Building: Essential Design Strategies For a Sustainable Future," (11/06, page 217)** 116SPONC

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Program title: **"Western Red Cedar Shakes and Shingles: A Sustainable, Versatile Roofing Choice," (11/06, page 211)** 116SPONB

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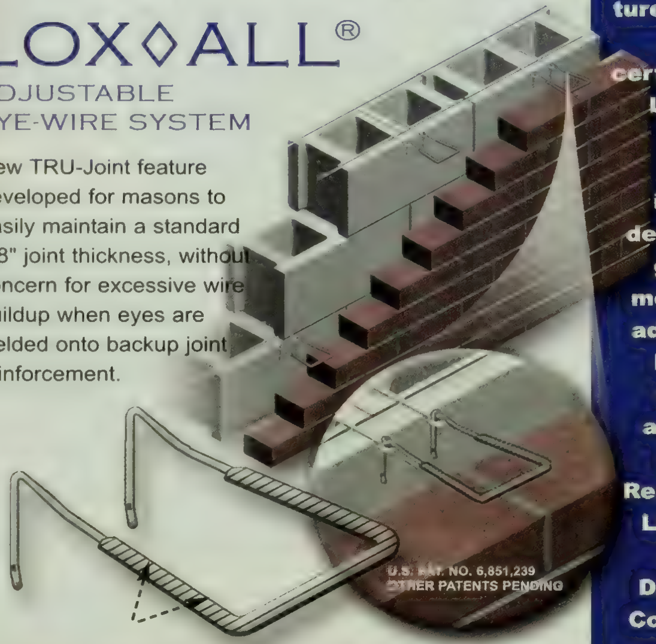

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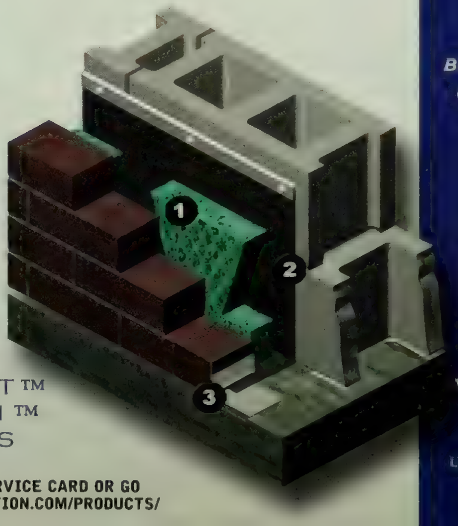

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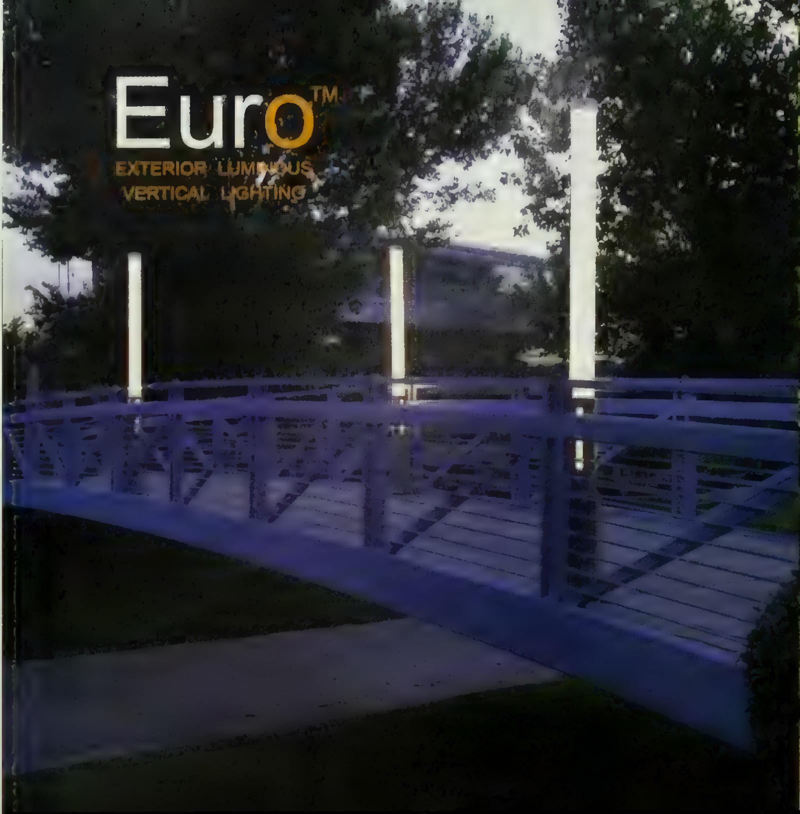

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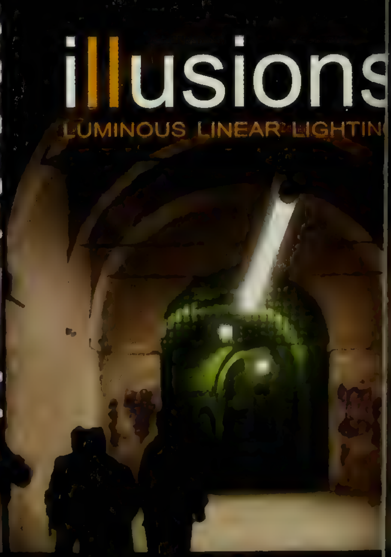

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Lighting

Three award-winning projects display seamless collaborations between architects and lighting designers

BRIEFS

Festival of Lights USA, a symposium fashioned after the Festival of Lights in Lyon, France, rolls into the historic Olde Town district of Conyers, Georgia, November 8 through 11. Designed to expand the specifier's knowledge of **light and color in outdoor environments**, the civic event features professional lectures, exhibits, and temporary lighting displays. Attendees receive either 15 Professional Development hours (PDH), AIA Learning Units (LU), or NCQLP Lighting Education Units (LEU) upon completion of the workshops, with sessions led by Arup Lighting's Rogier Van der Heide and Michael Rohde, a Berlin-based lighting director of L-Plan. Highlighting the festival, sponsored by Acuity Brands Lighting, 12 **teams of lighting designers will illuminate buildings** and public areas throughout the town. The displays will be open for public viewing during the final two days of the program. Read more about it at www.festivaloflightsusa.com.

As part of its centennial celebrations, the Illuminating Engineering Society of New York (IESNY) is partnering with Parsons The New School for Design's department of architecture, interior design, and lighting to produce a foldout **nightseeing map**, which will showcase standout civic design projects in New York City. The map, available in 2007, will be an illuminated "walking tour," with planned distribution to the general public through press and tourist bureaus. Lighting designer Leni Schwendinger and urban designer Brian McGrath, the project's directors, will offer a **glimpse into the cultural stories**, legacies, and idiosyncrasies of the nocturnal New York cityscape through its illumination. Existing projects (landmark, infrastructure, facade, landscape); pending projects (on-the-boards images and drawings); and imaginary projects ("what if" concepts by Parsons students) will be part of the mix. For more map project details, visit www.iesny.org.

Now architects can earn more education credits by studying lighting. The International Association of Lighting Designers (IALD) was recently approved as a registered provider for the AIA's Continuing Education Systems (CES) Registered Provider Program. As a registered preferred provider, the IALD will present targeted continuing education programs to AIA members. Plans are under way to register existing education programs as well as develop new ones. Meanwhile, the deadline for submitting entries to the IALD 24th Annual Awards for architectural lighting design is November 15. For information and rules, go to www.iald.org. *W.W.*

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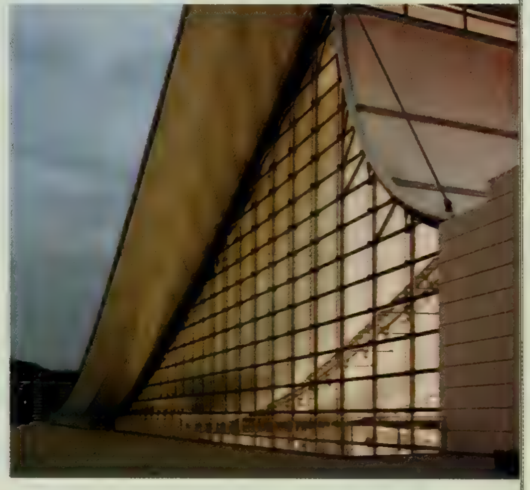
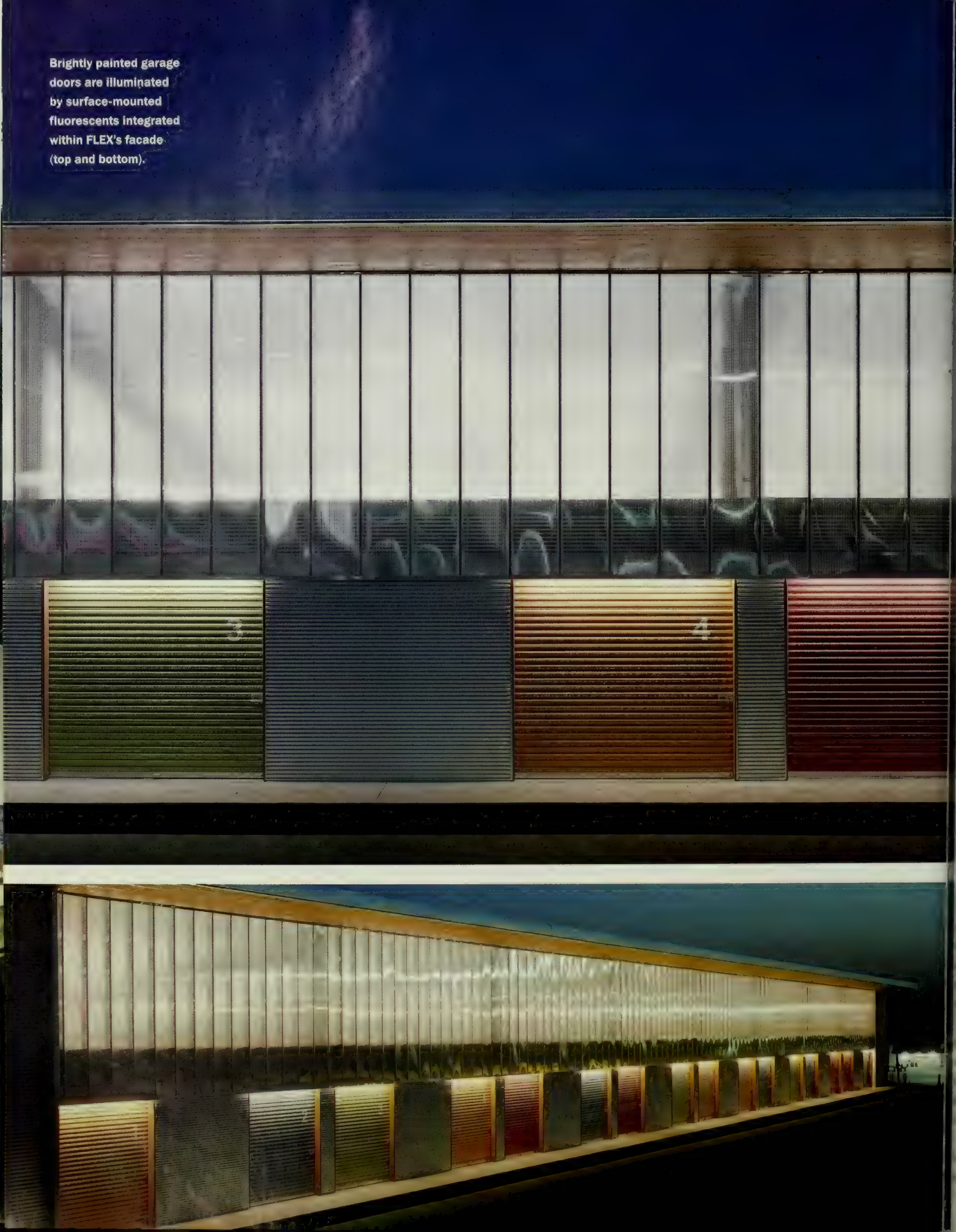
LAM Partners
244 Lighting Products

This month we showcase three recent winners of the 2006 International Association of Lighting Designers Annual Awards. Each of the U.S. projects received the highest honor, the Award of Excellence. Though varied in scale and program, the new buildings illustrate how a close collaboration between lighting consultant and architect can enhance the profile and performance of commercial and civic structures.



In the Highland Crest neighborhood of Topeka, Kansas, Derek Porter Studio gives a mini-storage facility maximum impact with low-budget lighting. Going in-depth at a much larger site, we return to Pittsburgh's convention center [RECORD, May 2004, page 154] to learn how LAM Partners teamed with Rafael Viñoly to wash exhibition halls with diffuse fluorescents and daylight (above). We also swing down Chicago's South Wacker Drive to encounter a new office-tower lobby enhanced by Cosentini Lighting Design. Welcome to the winner's circle. *William Weathersby, Jr.*



Brightly painted garage doors are illuminated by surface-mounted fluorescents integrated within FLEX's facade (top and bottom).

Derek Porter Studio elevates the image of **FLEX**, a mini-storage center, with simple, indirect lighting

By William Weathersby, Jr.

Since the closing of the Forbes Air Base more than 20 years ago, the Highland Crest neighborhood of Topeka, Kansas, has been in steady, socioeconomic decline. Although the neighborhood improvement association recently fought and won to keep a public school open, few businesses or civic entities have stepped into the void to create new magnets for community development. But in an unlikely turn of events, perhaps the most mundane of vernacular urban structures—the mini-storage shed—has helped mend the community's frayed edge and image. FLEX Storage Systems, designed by the Kansas City–based architecture firm el dorado, creatively combines standard building materials and simple forms to raise the profile of this humble commercial building type. Efficient, engaging lighting by Derek Porter Studio helps transform the urban landscape from blighted to blithe.

Constructing a building beyond the utilitarian blandness of a typical mini-storage facility was a key goal in the mind's eye of client Diane Alpert of Botwin Family Partners. Having inherited a dilapidated strip mall of shops on the 4-acre site, she commissioned a feasibility study to assess future commercial development. When the study found that area construction costs and market lease rates would not support upgraded retail outlets, the alternative economic model became a self-storage facility, supported by rezoning and a low-interest loan from the Topeka City Council.

"The design team was asked to create a building that would elevate the anonymous profile of a typical place for parking your belongings," says principal lighting designer Derek Porter. "The concept was an illuminated building that would outwardly serve as a symbol of renewal and engage the surrounding streets."

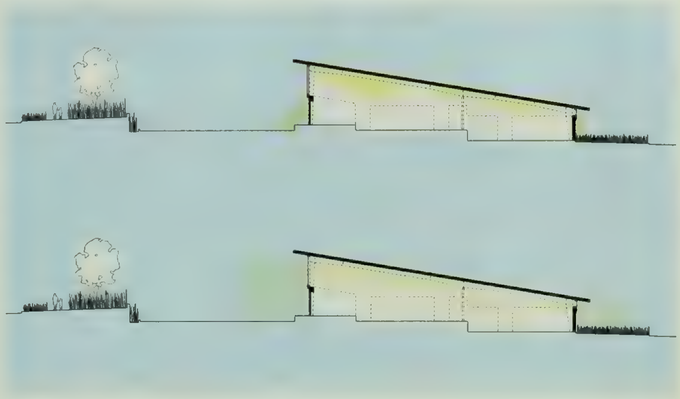
The 24,000-square-foot facility contains 180 conventional and 120 climate-controlled bays for commercial and personal storage. Led by principal Josh Shelton, the architects designed an aluminum-clad shed structure topped by a sloping roof that steps down the terraced site. Translucent, polycarbonate panels serve as clerestories, while the exterior of each garagelike door is painted a different bright color to create graphic punch.

"Both indoors and out, the placement of lighting fixtures was the linchpin of the design," Porter says. "We wanted the lighting to serve multiple purposes while revealing subtle relationships between architectural elements." And to keep in line with the modest construction and maintenance budgets, Porter specified the same 4-foot-long T8 fluorescent lamp model that could be housed in three fixture types.

Surface-mounted fluorescents integrated within the building facade illuminate the colorful exterior garage doors. The luminaires are wet-location-rated and fitted with cold-weather ballasts and vandal-resistant polycarbonate lenses. Each fixture is set in a niche above a 9-foot-wide garage door to simultaneously illuminate the facade, loading dock, and car parking lot. When the door is raised, the same fixture illuminates the inside of the storage unit. "The polycarbonate clerestory drops down to function as a valence for the fixture," Porter points out. This creates a seamless look, but also cuts down on vandalism, since the luminaries are shielded. And thanks to this fabrication, customers do not stand beneath overhead exterior downlights that would create harsh shadows hindering movement at night.

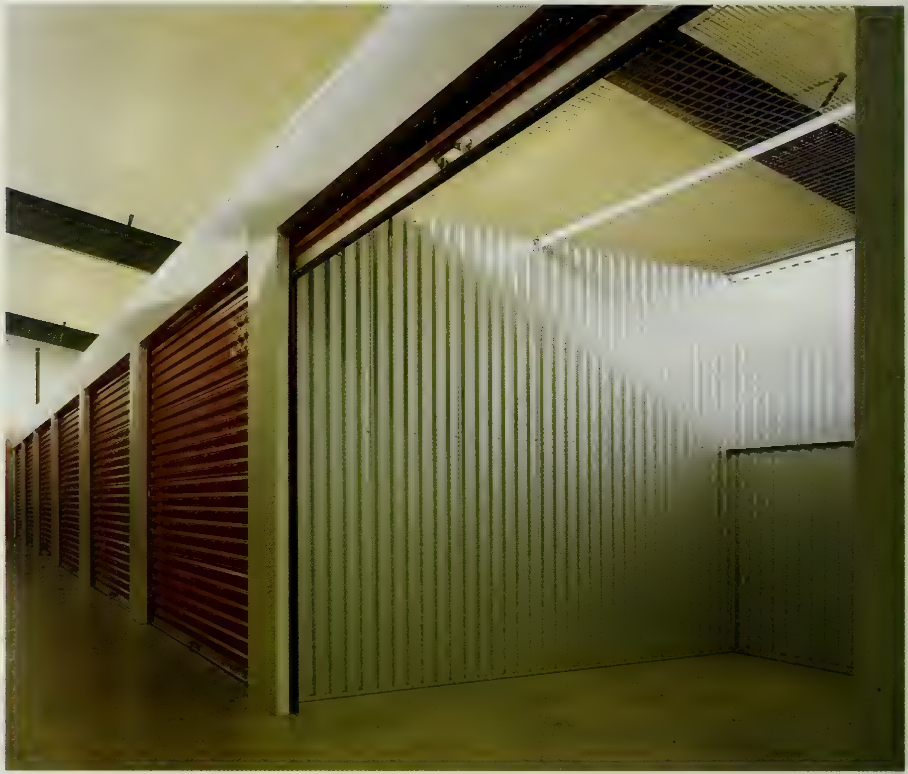
Inside, daylight pours through the polycarbonate clerestories and bounces off the sloped ceiling. Interior storage bins and corridors are indirectly illuminated with continuous rows of two-lamp fluorescent strips mounted on the top of storage cubicle walls. This concealed location shields the direct view of lamps and reduces the likelihood of damage from clients moving goods through the corridors and bins. The luminaires are zoned in rows running parallel to the clerestories and controlled by managers at wall-box switches in the office area, depending upon daylight conditions. Rather than drywall, the ceilings of the storage units are composed of reinforced nylon netting to allow light to permeate the interiors.

Two sections show the use of electric light (top) and daylight (bottom) to illuminate FLEX Storage Systems. Clerestories on the north and south facades admit daylight. Indirect fluorescents illuminate the interior's sloping-shed roof.

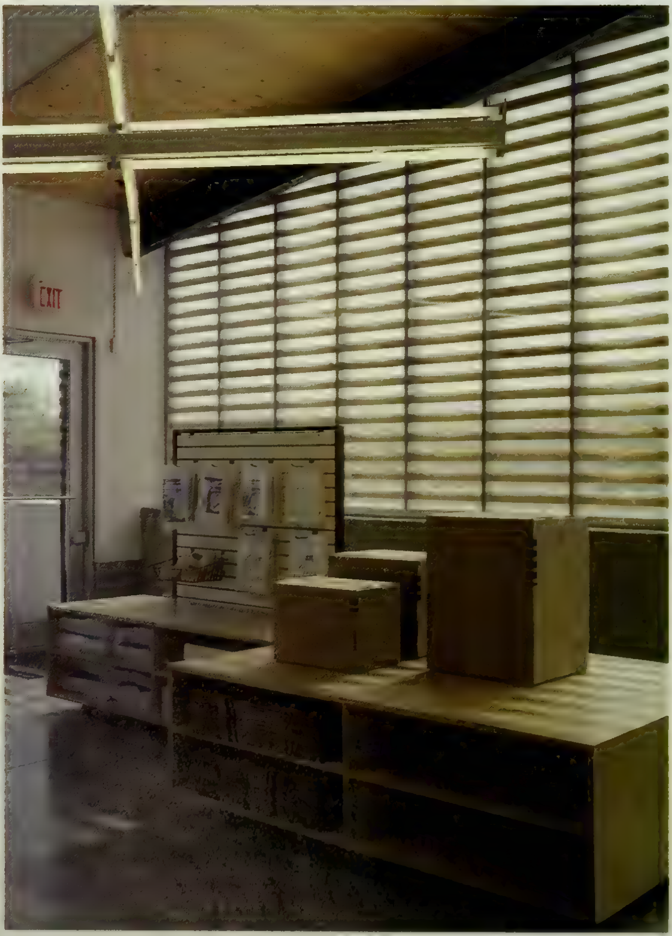


The sales area, the only space equipped with exposed luminaires, features suspended fluorescent strips set in an X pattern. "The installation provides general illumination with a more expressive visual gesture," Porter says.

Project: *FLEX Storage Systems, Topeka, Kansas*
Lighting designer: *Derek Porter, Studio—Derek Porter, principal designer; Katrina All, Katie Green, project team*
Architect: *el dorado—Josh Shelton, principal architect; Doug Hurt, Brady Neely, project team*
Engineer: *Stephen P. Masland (m/e/p, structural)*
Consultant: *Off the Grid (landscape)*
General contractor: *Kelley Construction*



Fluorescent strip lights mounted atop the storage walls indirectly light the interior bays and hallway (right). Suspended, exposed fluorescents add a sculptural flourish in the office (below).



Throughout the facility, all mechanical and electrical systems were carefully coordinated with the architect and located away from the illuminated ceiling to reduce visual clutter. The layering of daylight and fluorescent illumination minimizes energy consumption and maintenance while meeting personal security and pragmatic performance requirements for clients at all hours of the day in the 24-hour facility.

Making good on her word to make FLEX more of a community partner than merely a commercial tenant, owner Albert has sponsored special events tied to the complex. An inaugural art exhibition titled *Moving In Moving Out*, also supported by the architects, showcased site-specific installations by regional contemporary artists. Displayed within vacant storage units, the office area, and corridors, the works focused on the themes of storage, reuse, community history, and local identity. Part of FLEX's mandate and design, Porter notes, is to adapt should the community's needs someday sidestep storage. "The lighting solution was specific to the required storage functions and the building's compositional rhythms while also streamlined enough to adjust to other programs," he says.

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Beyond its pleasing facade and interiors threaded with light, FLEX gives another environmental boost to Highland Crest: The grounds were planted with native prairie grasses and wildflowers researched by a local botanist. Neighbors and students now watch the birds and insects attracted to the site, with U-Hauls seeming almost out of place. ■

Sources
Fluorescent fixtures: *H.E. Williams*
Polycarbonate glazing: *Polygal*

For more information on this project, go to Lighting at **archrecord.construction.com**.

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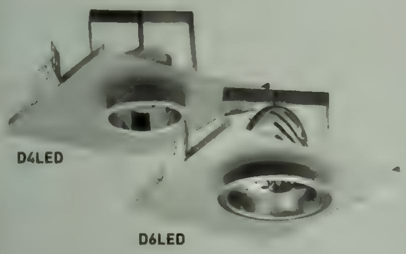

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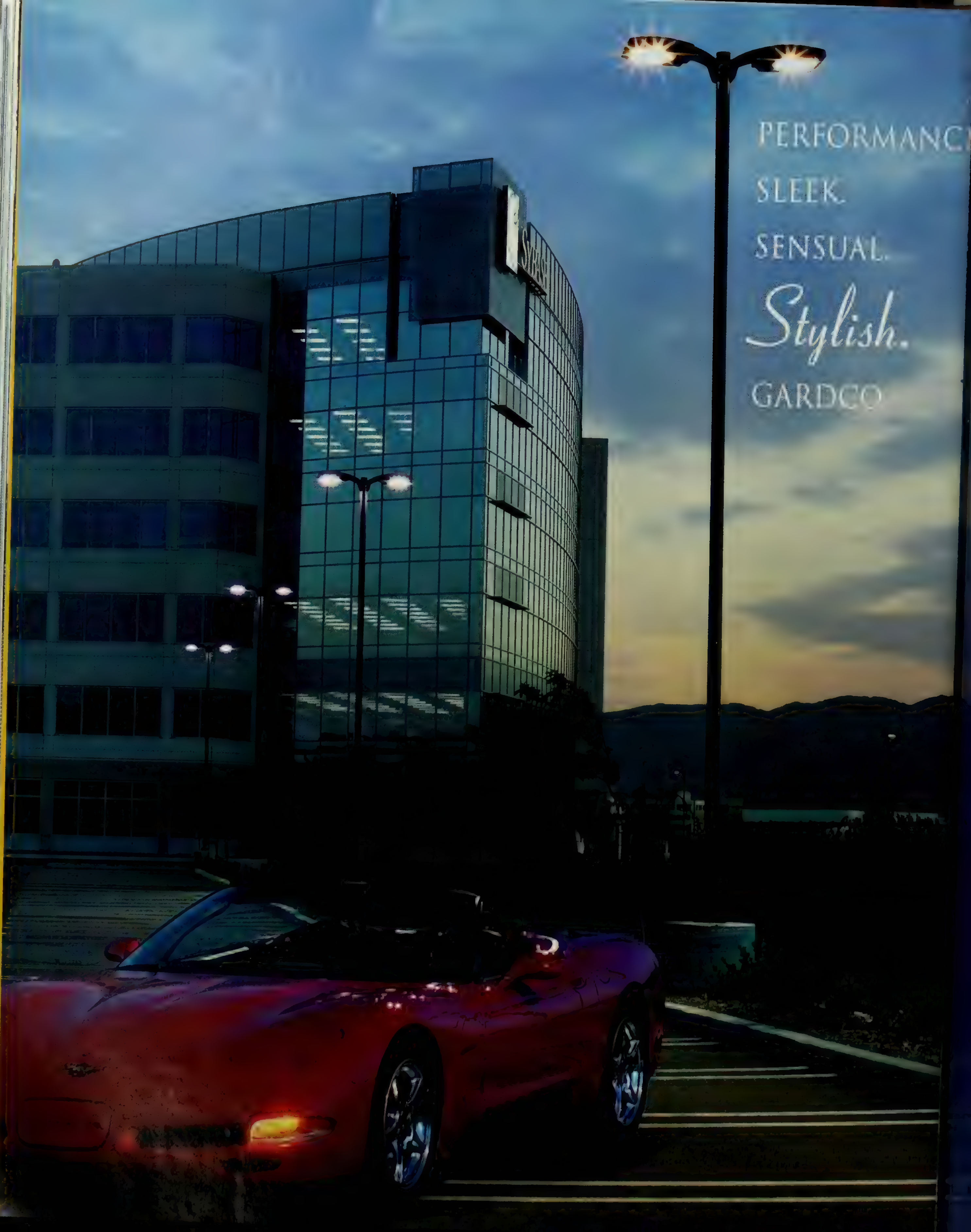
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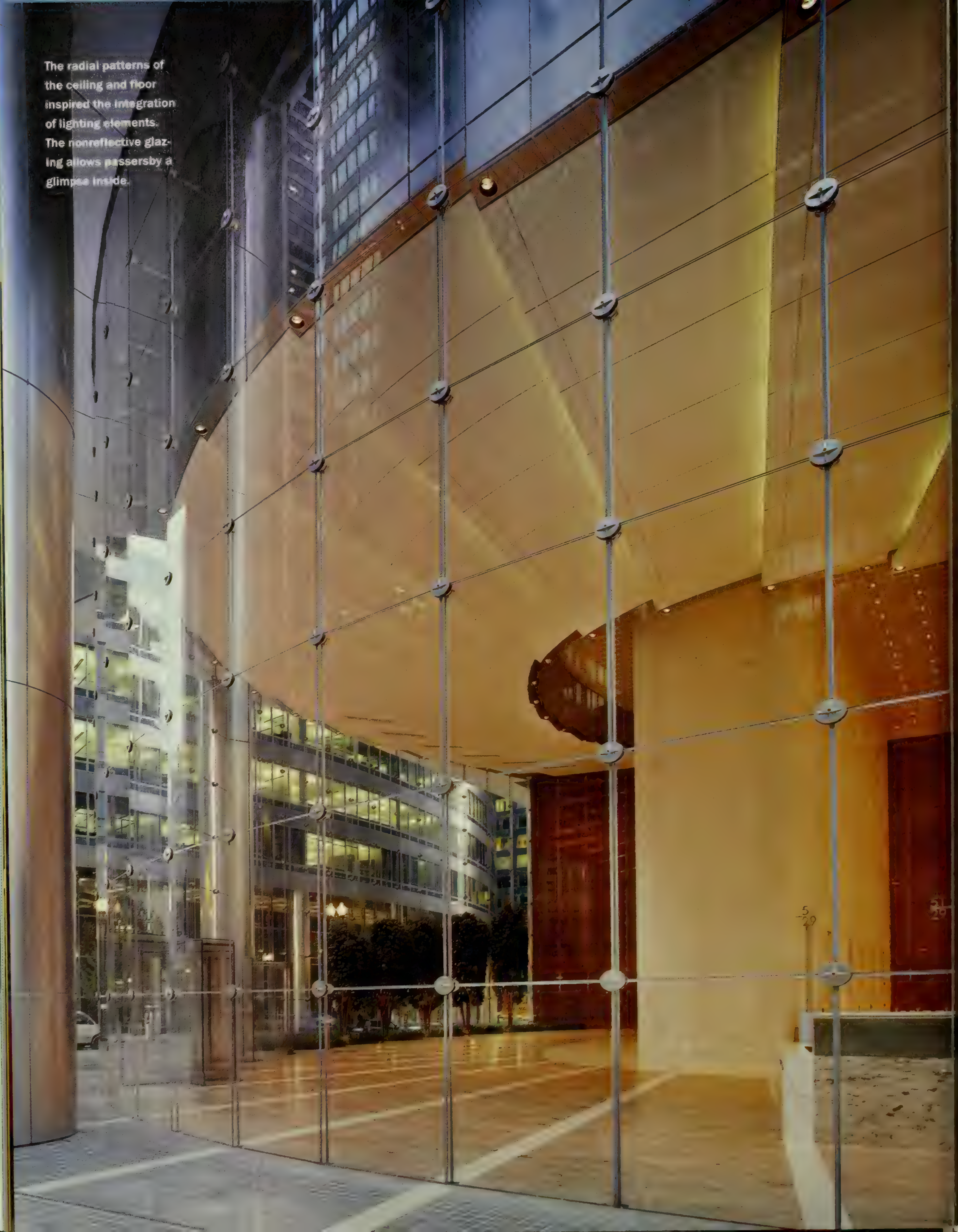
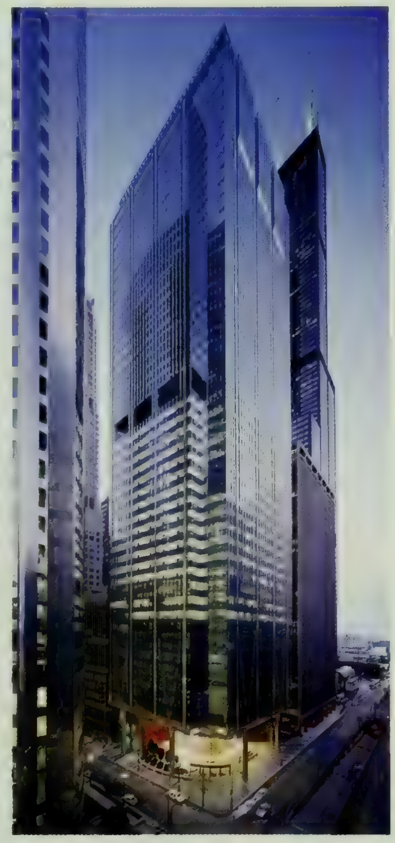


The radial patterns of the ceiling and floor inspired the integration of lighting elements. The nonreflective glazing allows passersby a glimpse inside.

Cosentini Lighting Design bathes the base of Chicago's **111 SOUTH WACKER** office tower with subtle light

By Leanne French

For the street-level identity of a new 52-story office tower at the corner of 111 South Wacker Drive in downtown Chicago, architect Goettsch Partners (formerly Lohan Caprile Goettsch) and its client, real estate developer The John Buck Company, envisioned an open lobby with a tour-de-force, translucent design. This concept translated into a curved, cable-supported glass facade that allows passersby to see into the lobby, which is framed by 50-foot-tall core walls clad in white Italian marble. Columns placed 80 feet apart visually open the space and draw the eye to radial patterns repeated from the stone flooring to a stepped ceiling that cleverly turns the underside of a parking garage ramp into a sculptural element. Illumination by Cosentini Lighting Design is seamlessly integrated into the architecture to enhance the lobby's visual presence throughout the day, from early morning to after hours when the city sleeps.



The base of the office tower engages the streetscape with diffuse lobby illumination.

The design team and developer began the 111 South Wacker project after completing another office high-rise, the UBS Tower, a block away on North Wacker Drive. This latest building comprises 1.4 million square feet, with each floor designed to be entirely free of interior columns. The structure's center core accommodates a 50-foot lease span east and west of the core, and a 60-foot span to the north and south. The layout maximizes exterior views of the city skyline and interior daylighting.

At street level, the building appears open and spacious, yet the footprint of the upper floors occupies almost the entire site. The design team accomplished this by diagonally transferring the 40-foot column spacing as it passes through the parking garage levels to 80-foot column spacing at grade. The column transfer is visually expressed on the facade of the parking levels.

For the lobby, principal design architect James Goettsch and principal lighting designer Stephen Margulies concentrated on the illumination of the white Carrara marble-clad core elements, which are contrasted by a wall of red Rossa Verona enclosing the lobby on two sides. "Everything really works off of the intensity and effect of the white surfaces," says Margulies. "The architect's concept was to simulate a skylight that would approximate daylight and bathe the interior planes." Affirms Goettsch partner Steven Nilles, "It was crucial to light the core uniformly. That is hard to do with walls that are that high."

Instead of opting for a luminous glass ceiling, which raised maintenance concerns, Margulies suggested indirect fluorescent lighting as a solution. Dimmable T5 strip lights are concealed within aluminum profiles in a small, open, extruded-grid system, allowing light to bounce off of the Sheetrock ceiling above. "We were able to produce huge amounts of light, conceal the light fixtures, and create a system that is very easy to maintain because of the open grid," Margulies explains.

During the day, the core walls are bathed in a cool, diffuse "northern" light. At night, tungsten accent fixtures suspended within the grid transition to a more dramatic ambience. The lobby lighting, controlled via a preset dimming system, sequences through four scenes from cool "simulated daylight" to warm tungsten light for early evening and nighttime. A "sleep scene" gives the lobby's core a subtle glow until morning.

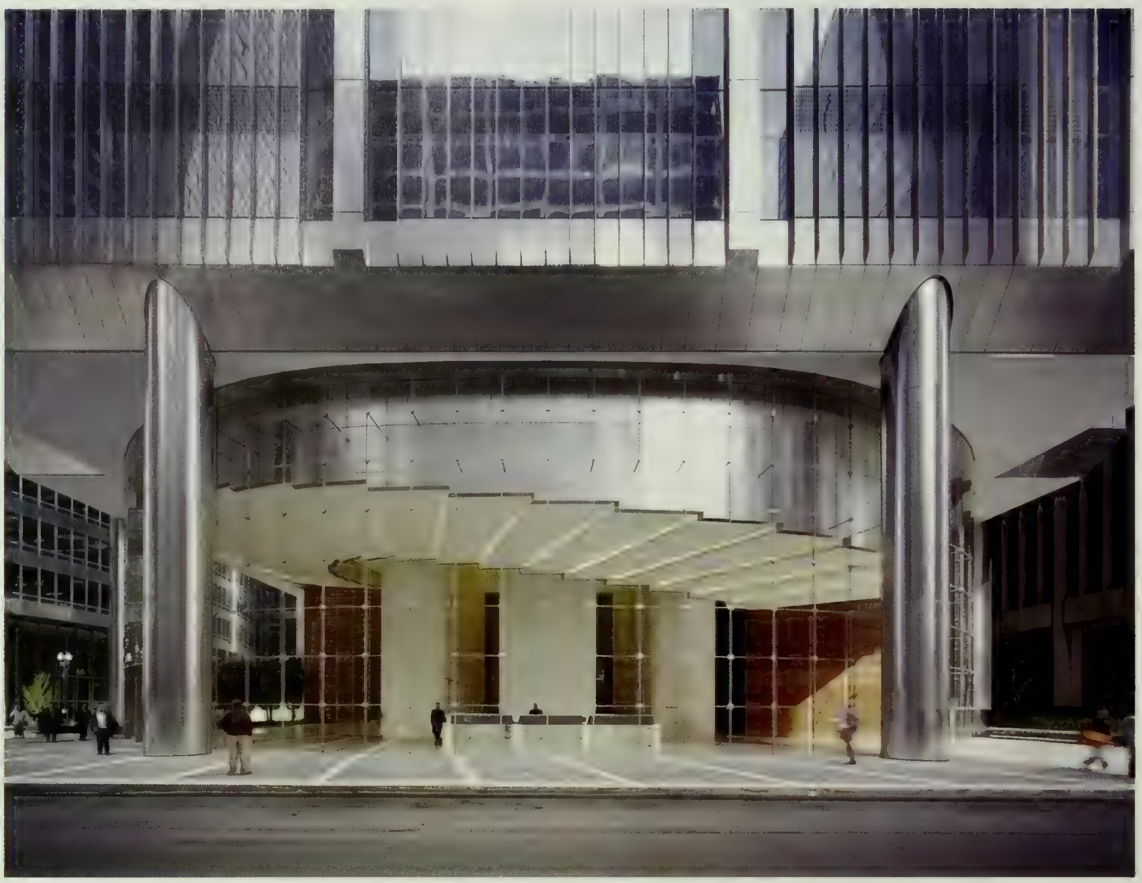
The pattern of the stepped ceiling design was a case of form following function. The lobby had to accommodate a ramp for a parking garage that ascended from levels four through nine. "We came up with a straightforward solution to a complicated problem by spiraling the ramp around the core and concealing it," says Nilles. "The geometry dictated by the circular two-way ramp influenced every aspect of the design of the lobby. It helped to create a visual theme at the base of the building."

Dimmable fluorescent strip lights, integrated into architectural coves on the underside of the ramp, reinforce the radial patterning. To maintain continuity for illumination washing the floor, additional tungsten downlights are concealed at the edges of the ramp.

Lighting also contributed to the sustainability of the building, which earned a LEED core-and-shell Gold rating from the U.S. Green

Leanne French is a freelance writer based in New York City. She is a frequent contributor to the RECORD *lighting and interiors sections.*

Project: *111 South Wacker, Chicago*
Lighting designer: *Cosentini Lighting Design—Stephen Margulies, principal; Fernando Soler, designer*
Architect: *Goettsch Partners—James Goettsch, FAIA, design partner; Steven Nilles, AIA, partner in charge; Joseph Cliggot, AIA, senior project architect; Vince Caporale, E. Aaron Greven, AIA, Ming-Chih Lai, AIA, Ryan Moody, Martin Salas, Scott Seyer, AIA, Joseph Shultz, design team*



The ceiling's stepped, radial pattern follows the arc of a parking garage ramp on the floors above the lobby (left). At the core, dimmable T5 fluorescents are set in an open grid to reflect off the ceiling plane (below).

Building Council. Another green stamp of approval comes from trees in the lobby lit with metal-halide track lights set in radial ceiling slots, which promote plant growth. "We had a specific foot-candle criteria that the landscape architect wanted to achieve," says Margulies. "Even though we are stimulating growth with electric lighting, the trees are on turntables so they can rotate to the windows to benefit from daylight."

A PRESET DIMMING SYSTEM CREATES VARIED SCENES WHILE SAVING ENERGY.

Trees bring the outside into the lobby, while granite interior flooring and exterior paving extends the visual reach of the radial patterning to the curb. The cable-supported, nonreflective glazing is engineered without a base so the building enclosure appears as a thin skin.

By creatively harnessing standard lighting techniques to the driving force of the lobby's architectural detailing, the design team has provided a welcoming arrival point for the office complex. "The lobby and corner site is actually small and wedged between two buildings, but that's the last thing you think of when your eye focuses into the core," Nilles says. "It's like an orchestral event; an enormous amount of planning and engineering went into the design of the space, but when you succeed, that effort disappears." ■

Sources

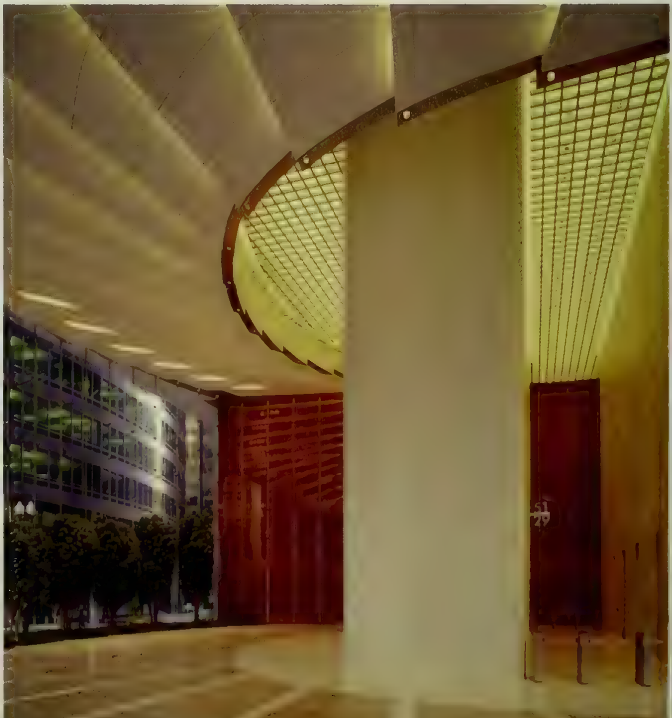
Interior ambient lighting: *Bartco Lighting; LSI*

Downlights: *Kurt Versen*

Lighting controls: *Lutron*

Glazing: *Viracon; Schott*

For more information on this project, go to Lighting at **archrecord.construction.com**.



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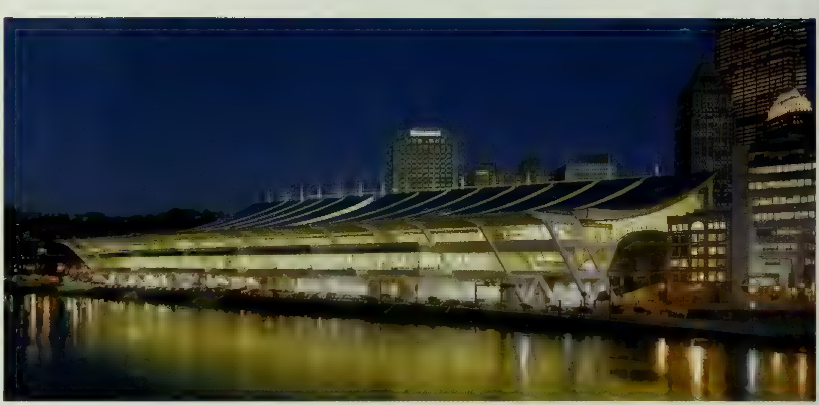
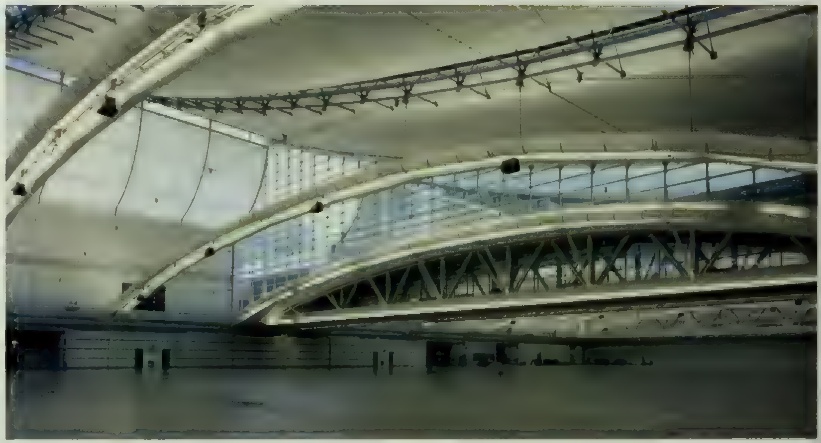
LAM Partners illuminates the sweeping forms of Rafael Viñoly's **CONVENTION CENTER** in Pittsburgh

By Leanne French

Anyone who has ever walked the exhibition halls of a traditional convention center is familiar with the slightly dazed feeling of time standing still. The standard function of a "black box" convention space, after all, is to make exhibited products look the same whether it's eight in the morning or six in the evening.





"It's like a sensory deprivation tank," laughs Keith Yancey, senior associate of Cambridge, Massachusetts–based LAM Partners, the lighting firm that collaborated with Rafael Viñoly Architects on redefining the tradeshow experience at the David L. Lawrence Convention Center in Pittsburgh.

Viñoly's structure took a pioneering sustainable approach, making the 1.45-million-square-foot space the first LEED Gold–certified green convention center and the world's largest certified green building. Beyond its environmental profile, the architectural presence of the convention center, located on the Allegheny River, is transcendent, with a sweeping roof, tall masts, and a column-free tensile structure inspired by Pittsburgh's suspension bridges. Part of the architect's original concept was to illuminate the exhibition spaces primarily with daylight.

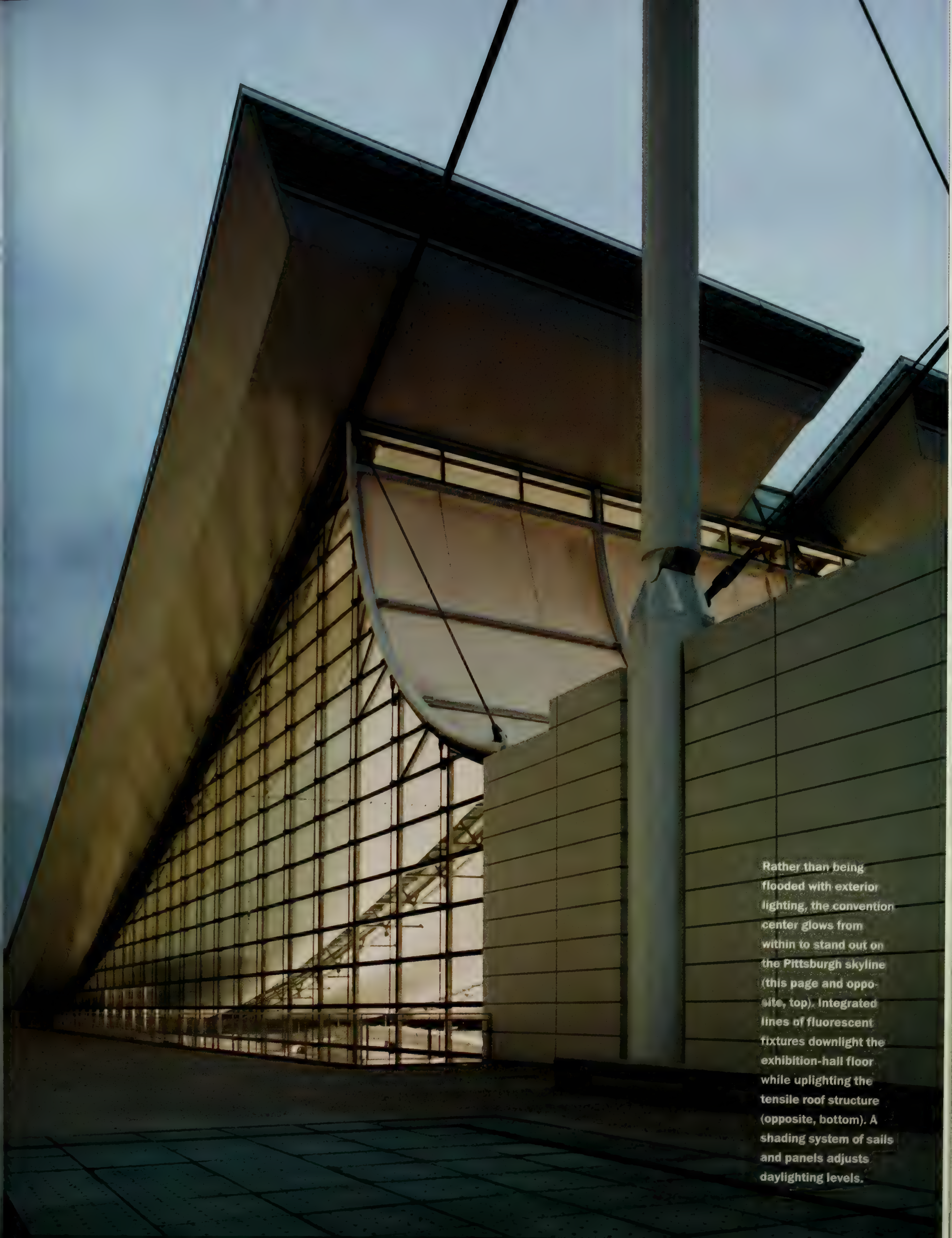
LAM Partners was working with the architect on the Boston convention center when it was asked to join the design team in Pittsburgh. Electrical engineer Burt Hill Kosar Rittelman had already developed preliminary daylighting concepts that were tested and refined based on analysis by Lawrence Berkeley Labs. LAM Partners followed through by designing a comprehensive luminous environment encompassing the green aspects of the project.

Using a physical model, sundial, tilt table, and digital video camera, the lighting team tested how the architectural design would perform in various daylight conditions. The team considered factors such as skylight configurations, shading devices, glazing types, and sky conditions through various seasons. "We had to test many possible conditions," Yancey says, "because sunlight pouring into the exhibition floor for a car or home show might be great, while computer equipment exhibitors wouldn't want direct sunlight."

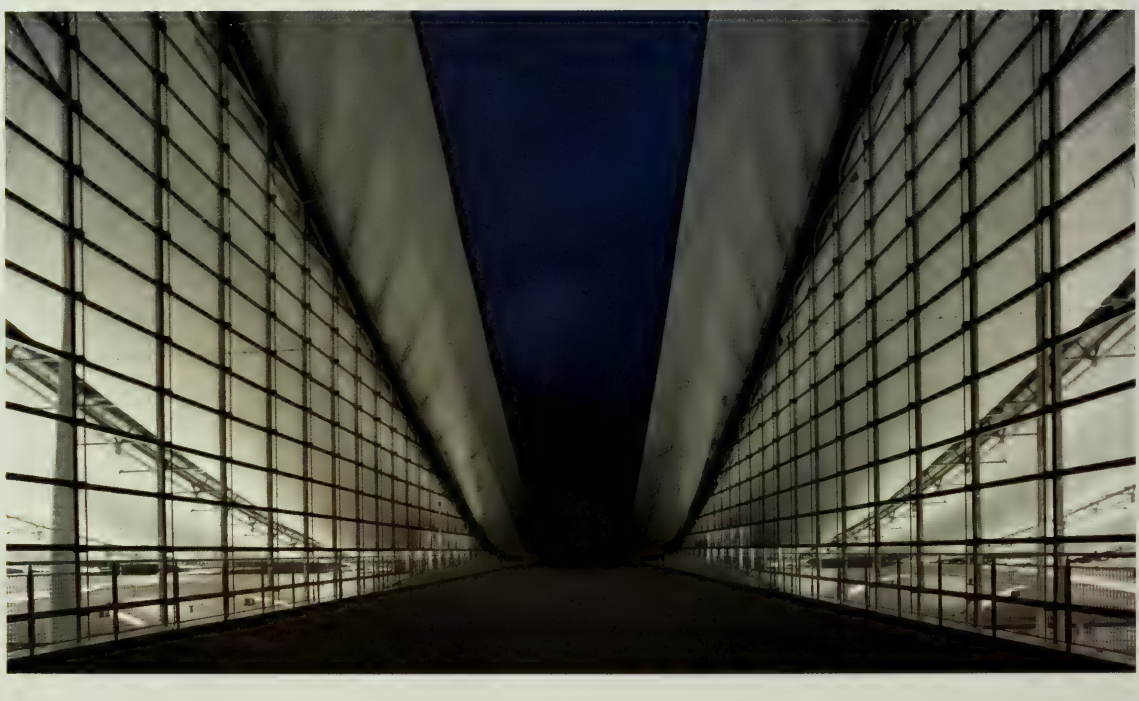
The solution for controlling daylight was a solar-dimming system, which offers three types of shading for admitting or altering available sunlight: no shade, diffusing, and blackout. During the intermediate or diffusing stage, opaque shades can be overlapped incrementally to throttle down the amount of daylight until full blackout is achieved for exhibition purposes.

When adding electric lighting to the daylight component, LAM Partners took its cues from Viñoly's structure. "We wanted to celebrate the volume of the space," Yancey says. "The architecture called out for a linear lighting solution. To hang big pods of glaring light fixtures would have ruined the flow of the sweeping rooflines."

Project: *David L. Lawrence Convention Center, Pittsburgh*
Lighting designer: *LAM Partners—Keith Yancey, AIA, principal designer; Paul Zaferiou, designer*
Architect: *Rafael Viñoly Architects—Rafael Viñoly, FAIA, principal architect; Jay Bargmann, AIA, project director; David Rolland, AIA, project manager*
Electrical engineer: *Burt Hill Kosar Rittelman Associates*



Rather than being flooded with exterior lighting, the convention center glows from within to stand out on the Pittsburgh skyline (this page and opposite, top). Integrated lines of fluorescent fixtures downlight the exhibition-hall floor while uplighting the tensile roof structure (opposite, bottom). A shading system of sails and panels adjusts daylighting levels.



Meeting rooms feature compact fluorescent downlights and wall washers that balance brightness during the day and provide visual depth at night (top). Gathering spaces facing the river and the city are equipped with lines of low-brightness fluorescent downlights, controlled by photocells that respond to changing daylight. The public rooftop pedestrian bridge leading to the riverfront terrace borrows controlled, reflected light from the convention center's interiors (left).

PHOTOCELL CONTROLS ADJUST THE MIX OF DAYLIGHT AND ELECTRIC LIGHT.

While most large exhibition halls are traditionally illuminated with industrial metal-halide sources, Yancey says that would have been out of character for the architecture and difficult to blend with daylight. Instead, T5HO fluorescent lamps downlight exhibits and uplight the ceiling structure. Instant-start fluorescent capability allowed the lighting team to devise a multiswitch system tied to photocell controls that respond to changing daylight. Lighting hardware is integrated into fabric ducts that act as large-scale luminaires.

Aiding the building's sustainable mission, the fluorescent design expends fewer watts, requires less frequent relamping, and uses 60 percent less mercury than a metal-halide array. Sustainability is carried through with the exterior lighting, where wall-mounted, cutoff fixtures and low-brightness recessed downlights illuminate public spaces and streets. PAR metal-halide sources illuminate giant cable anchors inside and outside the building. Reflected light from interior downlighting and wall washing is supplemented by small, custom step lights to illuminate a rooftop pedestrian bridge and terrace that offer stunning views of the city and river. Since its debut, the convention center's glowing nighttime presence has already become a symbol of architectural innovation and environmental responsibility within Pittsburgh's cityscape. ■

Sources

Interior ambient lighting: *Corelite; Neoray*

Downlights: *Portfolio*

Pendants: *Neoray*

Exterior lighting: *LSI; Kim Lighting; SPI Lighting; Designplan; Lumière*

Lighting controls: *Leviton*

Glazing, skylights: *PPG Industries; LinEl Signature*

For more information on this project, go to Lighting at **archrecord.construction.com**.

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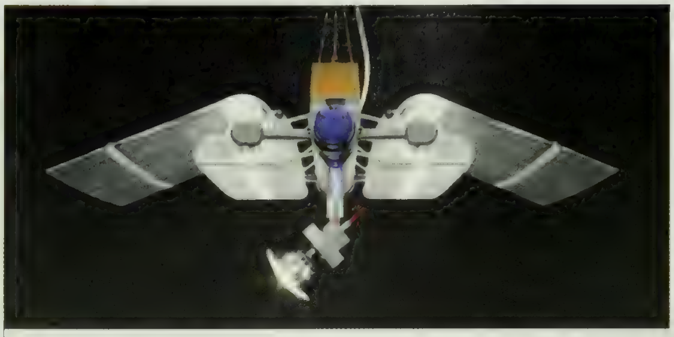
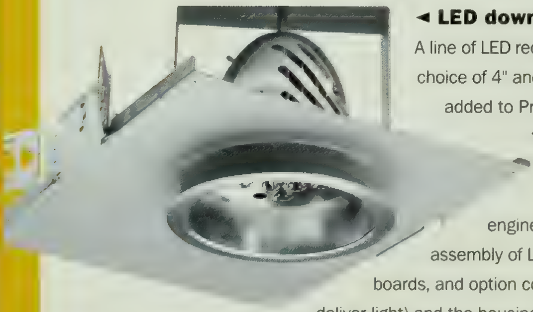
Lighting Products



▲ Creature from the deep

Milan-based Reggiani has teamed up with Richard Rogers Partnership to create the Maantis linear pendant. Intended for high-end offices, Maantis was inspired by the iridescent glow of deep-sea creatures and incorporates T5, spot, and LED lighting. Translucent prismatic polycarbonate ribs diffuse, reflect, and refract light, minimizing glare. LEDs running along the lower spine act as zonal indicators and provide optional low-level lighting. The fixture will be available in the U.S. in the first quarter of 2007. Reggiani Lighting USA, Wallkill, N.Y. www.reggiani.net **CIRCLE 201**

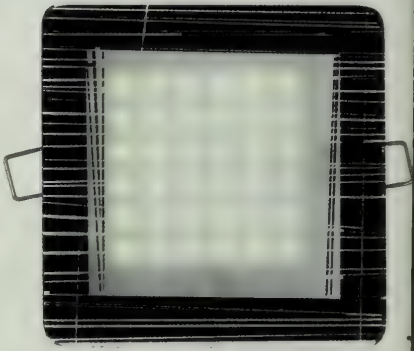


◄ LED downlights

A line of LED recessed light fixtures in a choice of 4" and 6" apertures has been added to Prescolite's Architektur family of downlights. Each downlight consists of a patent-pending light engine/reflector assembly (an assembly of LEDs, heat sinks, circuit boards, and option components designed to deliver light) and the housing. An array of paraboloic reflectors within the light engine has been designed to eliminate brightness while delivering light in a uniform optical distribution. The new D4LED and D6LED downlights are listed for wet location under covered ceilings and offer a full range of reflector finishes and colors. Prescolite, Spartanburg, S.C. www.prescolite.com **CIRCLE 203**

◄ LED night light

Lighting manufacturer inter-lux will now exclusively offer the Wagner Premium Class of solar-powered LED outdoor lighting in North America. The line includes 17 weatherproof models produced in a material palette including high-grade stainless steel and FSC-certified teak wood. The New Port path light (left) is 35½" high and features a monocrystalline solar panel, three white LEDs, and two rechargeable batteries. inter-lux, Columbia, Md. www.inter-lux.com/wagner **CIRCLE 205**



► Shallow, in a good way

Introduced at this year's Light+Building fair in Frankfurt, Germany, Nimbus ultra-flat SMD (surface-mounted device) LED semiconductor diodes are cool to the touch and offer a low installation depth. A patented ultra-thin plate in a special alloy cools the SMD LED illuminant, which can operate for up to 50,000 hours. The ceiling-mounted Printline SMD LED (above) features an overall height of 1". The front is made of matte acrylic glass with a back-printed louver profile in two designs. Hamburg's new Chamber of Commerce by Behnisch Architects has been equipped with SMD LEDs on all five floors. Nimbus, Stuttgart. www.nimbus-design.com **CIRCLE 202**

► Organically technological

Zumtobel Staff may have shortened its name to Zumtobel, but the company continues to expand its product line. The introductions this year focus on the theme of "Humanergy Balance"—the balance between the environment, energy, and the individual. Available in indirect, direct, and indirect-direct lighting configurations, the Evio pendant luminaire features a precision cell louver optic housed in a slimline flowing shape clad in glowing hardwood (right) or in Eternit, a noncombustible, pressed-synthetic-fiber composite with a concrete appearance. Zumtobel Lighting, Highland, N.Y. www.zumtobel.us **CIRCLE 204**

▲ There when it's needed, hidden when it's not

Recessed, retractable, and self-contained, Velaré concealed emergency lighting hides away during normal lighting conditions and only reveals itself upon the loss of power. Trim and door panels are finished in a durable, white textured power paint, but the fixture can be customized and painted to match any surface, wall, or ceiling. Two fully adjustable MR16 halogen lamps deliver up to 140 feet of center-to-center spacing. Self-diagnostics are standard on every unit, including an advanced microprocessor, which automatically performs monthly self-tests. Lithonia Lighting, Conyers, Ga. www.lithonia.com/Velare **CIRCLE 206**

For more information, circle item numbers on Reader Service Card or go to archrecord.construction.com, under Products, then Reader Service

Designing for a Sustainable Future...

AAL's Indirect product line added a sibling, the 'Straight Fixed Head'. The Dark Sky Friendly luminaire produces soft, glare-free illumination making it a perfect match for applications where mood is just as important as illumination. The 'Straight Fixed Head' model is available for post and wall mount configurations and can be styled with a round or square upper reflector to compliment architectural themes. The Indirect product family utilizes energy efficient lamp sources up to 150 watts and Egress (emergency) options are available to enhance public safety.

For product information, log onto:
ww.aal.net/indirect_sfh.html

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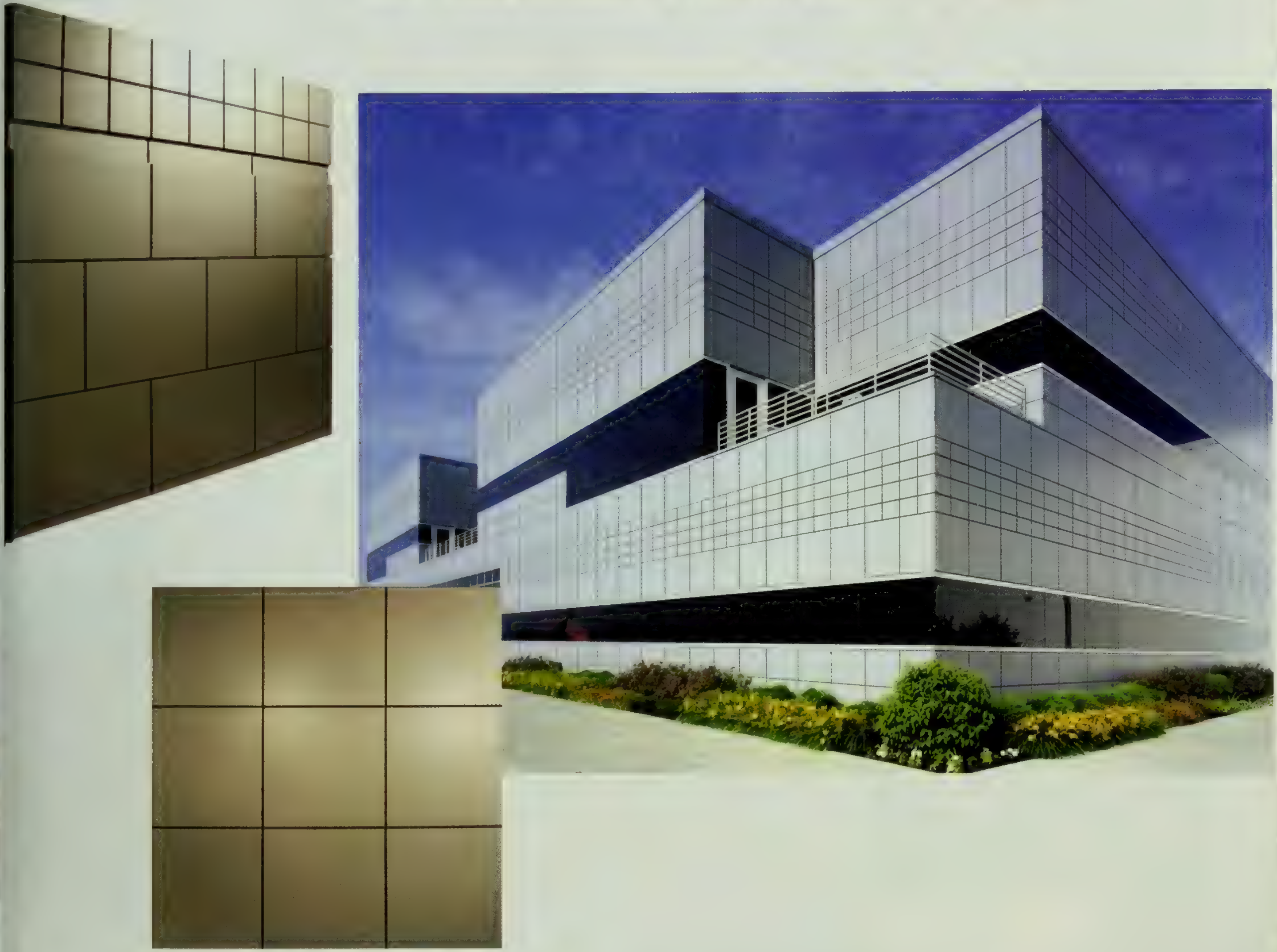
Products

Metal Siding & Roofing

Our roundup this month includes the latest metal systems that **protect and enhance roofs and walls.** Hurricane- and/or wind-resistance, reflectivity, and energy efficiency remain important issues for this category, which includes products made of **metal composites, zinc, steel, and aluminum.** *Rita Catinella Orrell*



The appearance of 28 individual panels is created here from only five Graphix Series panels (top left). It takes three panels to create the look of a grid of nine panels (bottom left). This building rendering of an application of Graphix panels (above) belies the actual number of panels that would need to be specified for the project.

Metal-composite wall-panel system gives the illusion of multipanel design

The Formawall Graphix Series is an insulated metal-composite wall-panel system that creates the effect of a multipanel installation with a single panel. Graphix Series panels are available in custom widths from 10" to 40" in ½" increments. The 2"- and 3"-thick panels can be specified with a maximum of 12 segments per panel.

The multipanel effect is created by adding segmented joints that mimic panel joints. These segmented joints can be placed at almost any location along the panel, which is available in lengths of up to 20'. The panels can be installed horizontally or vertically and the segmented joints can be spaced at a minimum of 12" apart.

The system is available in standard 22/26 gage G-90 galvanized-steel face and liner with CFC-free foam core. The panel's joists are Centria's patented, vented, and dry-sealed rainscreen, pressure-equalized joinery. As it is a complete wall system, Graphix does not require additional wall components, such as batt insulation, exterior sheathing, or building wrap. Centria, Moon Township, Pa. www.centria.com **CIRCLE 207**

Products Metal Siding & Roofing

▲ Hurricane-tough panel system

By adding a thin layer of Kevlar fabric to Reynobond's polyethylene core, Alcoa has created the only light, flexible, aluminum-composite panel that can withstand hurricane-propelled debris and similar types of impact without the use of backer materials. The panel has passed rigorous simulated-hurricane-impact tests and is designed to withstand wind-borne debris and hurricane wind speeds up to 130 mph, such as in a Category 3 hurricane. Alcoa, Eastman, Ga. www.reynobondwithkevlar.com **CIRCLE 208**

◄ Aging technique

Architectural Weathered Steel is a custom-made, preweathered surface from Zahner. Produced exclusively on copper-bearing steel surfaces, the proprietary technique produces an insoluble surface coating that reduces runoff staining on adjacent surfaces. Suitable for interior and exterior surfaces, the technique creates a rich texture in a spectrum of color, from deep reddish browns to orange-brown tones. A. Zahner, Kansas City, Mo. www.azahner.com **CIRCLE 210**

◄ One cool roof

Met-Tile has become an Energy-Star partner for its metal-tile panel roofing system that combines the look of tile with the performance of metal. The updated steel roofing line features a Super Series 4800 Super Cool architectural coating system in 10 colors. The coatings have solar reflectivity values ranging from 26 to 67 percent, which meets and in some cases exceeds Energy Star requirements. Met-Tile, Ontario, Canada. www.met-tile.com/coolroof.htm **CIRCLE 209**

▲ River of zinc

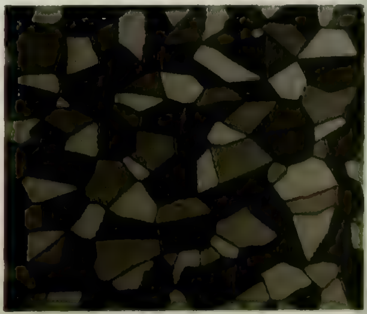
More than 14,000 square feet of Rheinzink titanium zinc wall panels from Una-Clad/Firestone were specified for the gallery wing of the $7 million Rochester Art Center facility in Rochester, Minneapolis. The center consists of two architectural forms, one encased in zinc and the other in copper, joined by an enclosed three-story glass atrium. The shimmering zinc panels were selected to play off the surface of the neighboring Zumbro River. Rheinzink America, Cambridge, Mass. www.rheinzink.com **CIRCLE 211**

► Cedar-look aluminum roof

The Perfection Country Manor Shake offers the textural appearance of authentic hand-split cedar shakes with the strength, durability, and energy efficiency of modern aluminum roofing. Each roofing panel is crafted into eight individual simulated shakes of varying height, width, and thickness to duplicate the random overlap appearance and 3D properties of real cedar shakes. The line is available in an earth-toned palette of 10 shades. Classic Metal Roofing Systems, Piqua, Ohio. www.classicroof.com **CIRCLE 212**

► Geometric stainless-steel finishes

Contrarian Metal Resources has introduced four new imported stainless-steel finishes: Austenite 55, Camouflage, Micro Checker, and Origara. Suitable for use in high-traffic areas like elevators and entryways, Austenite 55 (right) reflects light in various ways, depending on the light source and angle of view within its mosaiclike texture. Camouflage has a "camo"-shaped pattern, Micro-Checker has a tread-plate appearance, while Origara features a grid of contrasting squares. Contrarian Metal Resources, Cranberry Township, Pa. www.metalresources.net **CIRCLE 213**



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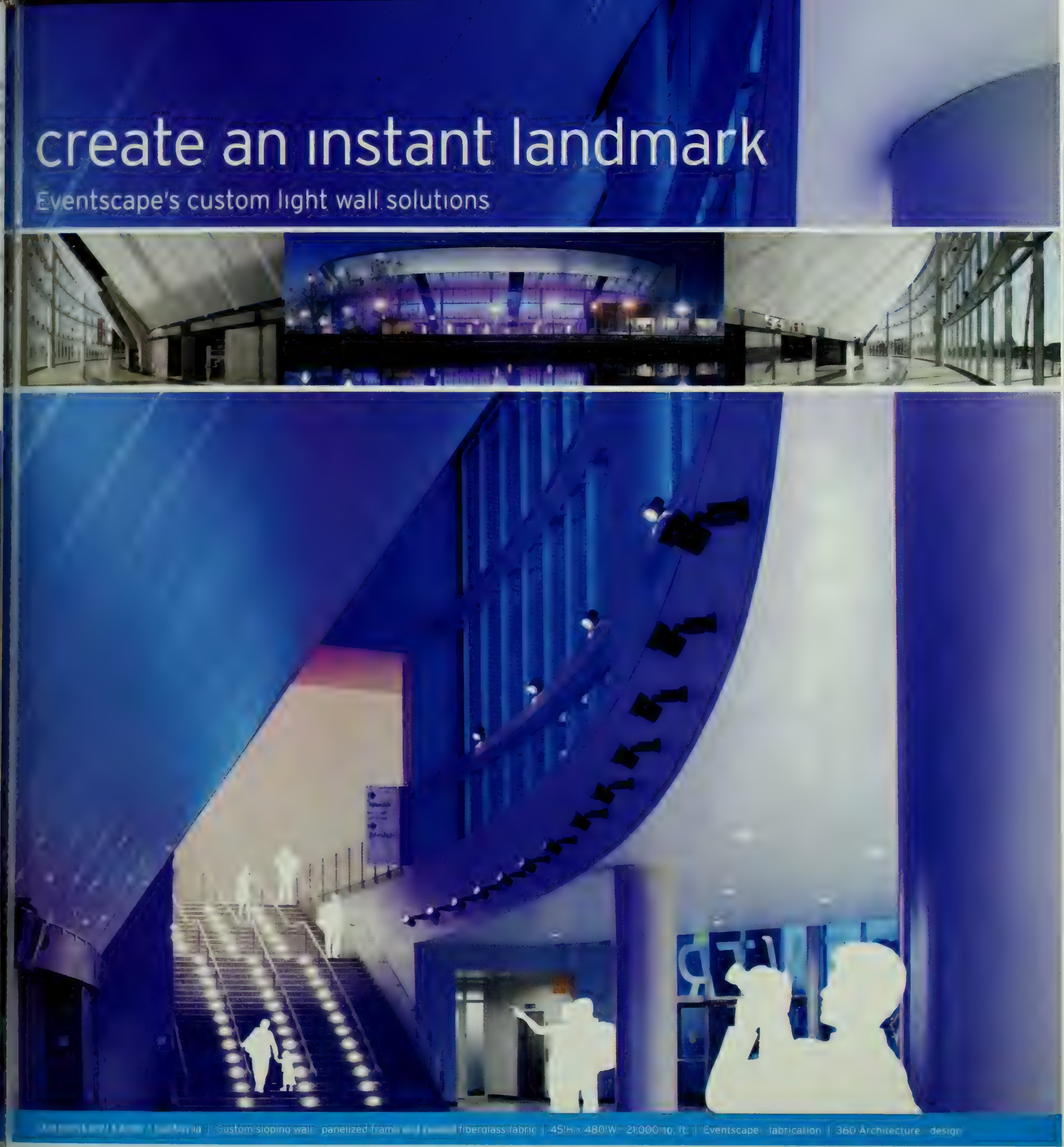

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Product Briefs

▲ Panels inspired by design icons

Inspired by a range of design movements, places, and even people, the relief panels in the Iconic Panels line are created of formed laminate over a caved wood core. The panels can be sawn, nailed, screwed, glued, or simply mounted on walls with the manufacturer's special Panel Cleats system. Seapod (above, in Walnut) is a retro design borrowed from the biomorphic playfulness of textiles and wall coverings of the 1950s and '60s. B&N Industries, Burlingame, Calif. www.bnind.com **CIRCLE 214**

◄ Sexy stool hugs you close

The Onda stool is the latest design by Stua founder Jesus Gasca. The stool's seat follows the contours of the sitter and provides lumbar support by hugging the person's lower back. The seat also features a soft rubber skin that allows for color and textural contrasts with the shell. Suitable for both indoor and outdoor use, Onda has a stainless-steel frame and comes in bar-counter (29" seat height) and kitchen-counter (26" seat height) versions. Onda is available in the U.S. through Design Within Reach (www.dwr.com). Stua, San Sebastian, Spain. www.stua.com **CIRCLE 216**

► Real wood laminate

Formica's Veneer Premium Wood Surfacing Collection includes 30 new engineered wood veneers that combine fine wood grain and a polyurethane finish. All are derived from sustainable forestry practices and produced using fast-growth species, including poplar, obeche, basswood, and bamboo (right). Five collections, including Modern, Traditional, Metropolitan, New Classic, and Exotic Veneers, make up the group. Formica, Cincinnati. www.formica.com **CIRCLE 217**

▼ Completing the thermal family

Kawneer celebrated its 100-year anniversary this year by unveiling an expanded exhibition booth at the AIA show and introducing new products, including the AA3900 Thermal Sliding Door and the AA900 ISOWEB window, completing Kawneer's family of high-performance products. Designed specifically for climates subject to temperature extremes, both products feature an ISOWEB polyamide thermal break that provides low thermal transmittance and high condensation resistance while eliminating dry shrinkage. This design also allows for a two-color finish option not possible with traditional thermal barriers. Kawneer, Norcross, Ga. www.kawneer.com **CIRCLE 215**

▲ Sunscreen helps cool off the hot Texas summer

For the new global headquarters for engineering and construction company Fluor, in Irving, Texas, Alcan Composites USA created custom sunscreen louvers of Alucobond aluminum-composite material. The energy-saving louvers were designed, fabricated, and delivered for installation faster than a competing premanufactured sunscreen, and contributed to the project's submission for certification by the USGBC's LEED rating system. The sunscreen louvers were designed to reduce the building heat load and shade the glass-lined dining area and an entry space lined with images documenting the firm's history. Alcan Composites USA, St. Louis, Mo. www.alcancompositesusa.com **CIRCLE 218**

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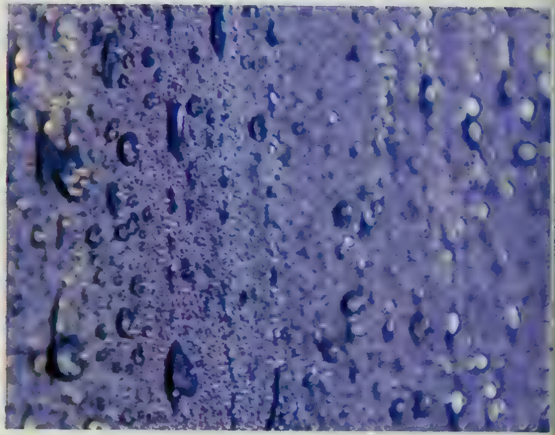
Product Briefs

► The latest china pattern

Speciality chemical manufacturer Degussa has created a flexible ceramic wall covering for interior applications. CCFlex is durable enough for hospitals, schools, and offices, yet lightweight enough to be used in airplanes, trains, and ships. The breathable, strippable finish can be custom-colored and patterned, and is antimicrobial and waterproof, as well as fire-, impact-, and soil-resistant. It is also heavy-metal-, plasticizer-, and stabilizer-free, meaning it has no phthalates linked with endocrine disruption. Degussa, Parsippany, N.J. www.degussa.com **CIRCLE 219**



◄ Wood ceiling tiles

Bioline Solid Finish tiles, available in cherry, beech, and maple real-wood veneers, are composed of 70 percent recycled, postindustrial material; feature coordinated core color and veneer (no edge banding required); and have a self-centering revealed edge. They are Class-1 fire-rated and offered in a variety of perforations and custom cutouts. Also Class-1 rated, Bioline Organic Texture tiles are available in light, medium, dark, and custom wood shades, and are composed of 80 percent recycled, postindustrial material. Illbruck Acoustic, Minneapolis. www.illbruck-acoustic.com/wood

CIRCLE 220

► Finishing up outside

The Benjamin Moore Exterior Stain Collection includes a full selection of VOC-compliant finishes varying in opacity from clear to solid color for facades, decks, and wood furniture. Finish options include clear, transparent, semitransparent, semisolid, and solid color stains. Benjamin Moore has also created a line of Prep Products appropriate for every type of wood no matter its condition, including either new or worn, plagued by mildew or mold, or tannin-leached types, such as redwood or cedar. Benjamin Moore & Co., Montvale, N.J. www.benjaminmoore.com

CIRCLE 221

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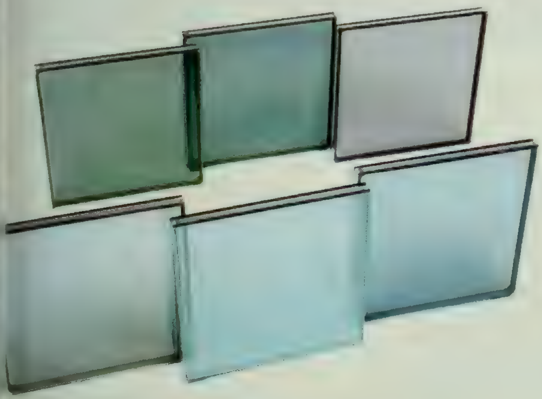
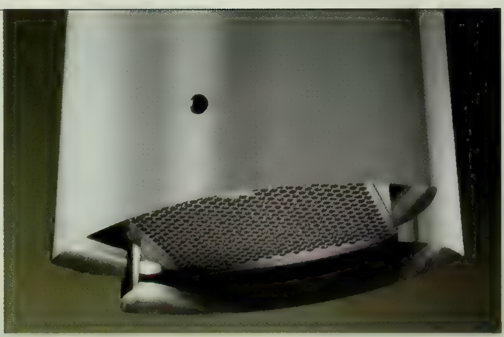
► Adding some Swiss style to the mix

Loadbearing, a U.S./Swiss company based in New York City, was launched at ICFF last May. Intending to fill a void in the marketplace for the simple, Modern furniture common in Switzerland, Loadbearing has introduced two furniture lines designed by Zurich-based Mathias Frei. Available in several heights and configurations, MShelving customizable storage system allows specifiers to create individual looks from a range of interchangeable colored-steel and wood-veneer sliding doors and panels. The MShelving bookshelf, shown here with walnut veneer doors, measures 41.7" wide x 78.7" high x 15.8" deep. Sharing the same material palette as MShelving is the Tilt table system for home or office, which transforms from a dining table to a coffee table, and stacks neatly for storage. Loadbearing, New York City. www.loadbearing.com **CIRCLE 222**



◄ Cool new glass

Solarban z50 glass, the latest addition to PPG's line of Solarban solar control Low-E glasses, features a cool steel-blue-gray appearance, minimal exterior reflectance, and comfortably bright levels of visible light. When combined with popular tints from the PPG Oceans of Color collection of spectrally selective tinted glasses (left), Solarban z50 glass dramatically expands the aesthetic and performance options available to architects. PPG Industries, Pittsburgh. www.ppgideascapes.com **CIRCLE 223**



► Kitchen conversation piece

The stainless-steel Menhir island hood, from Zephyr's Elica Collection, was designed by Zephyr artist-in-residence David Lewis. Lewis found inspiration for the hood's shape from the upright stones, called menhirs, found at prehistoric sites like Stonehenge. Crafted in Italy, the 22" fluted hood features a powerful 600 cfm blower, recessed halogen lighting, and a "Control Ball" interface that provides complete access to all functions: pushing the ball to the left controls the fan; pushing it to the right controls the lighting. The unit comes with a cone-shaped remote control, also designed by Lewis. Zephyr Ventilation, San Francisco. www.zephyronline.com **CIRCLE 224**

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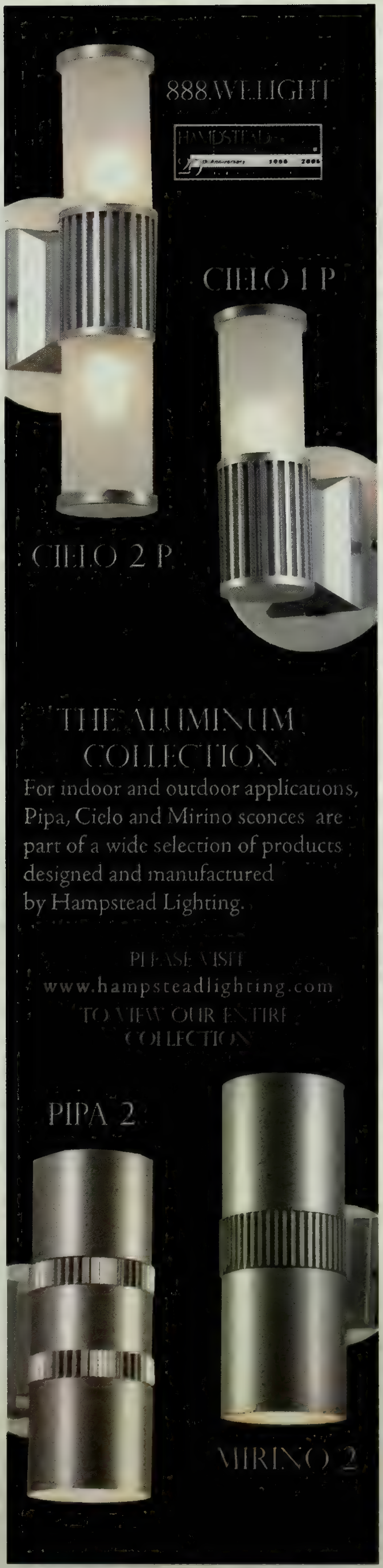

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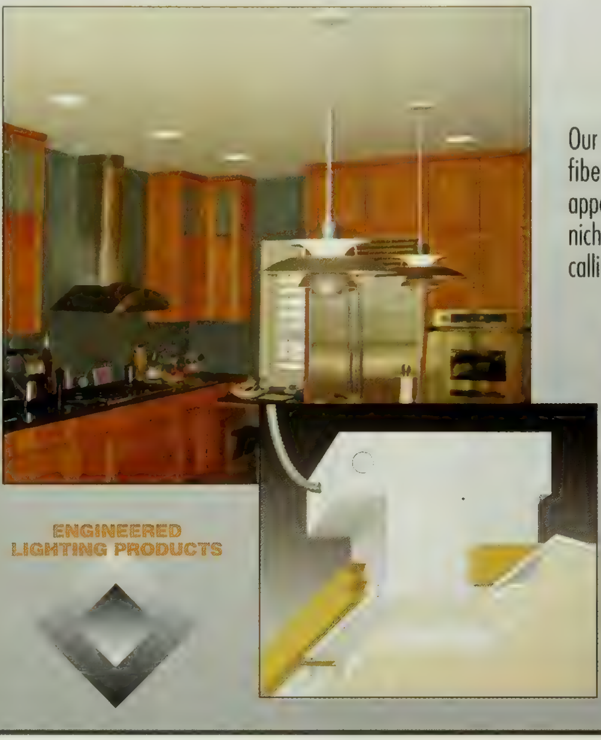

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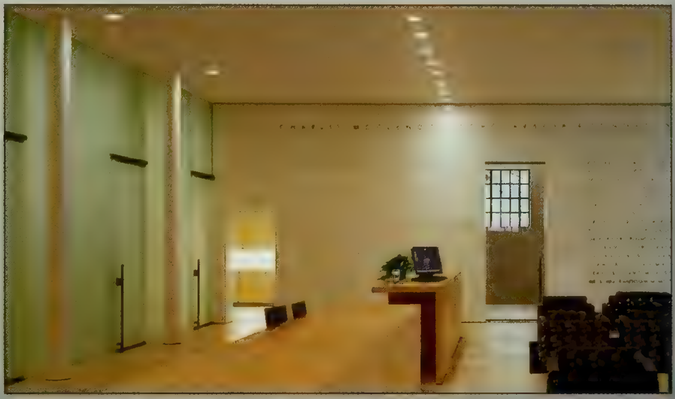

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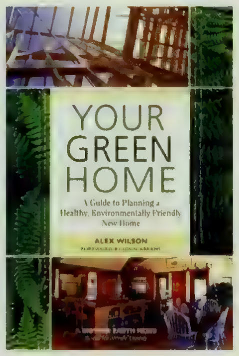
Product Resource: Literature

Residential green building


YOUR GREEN HOME
A Guide to Planning a Healthy, Environmentally Friendly New Home
ALEX WILSON

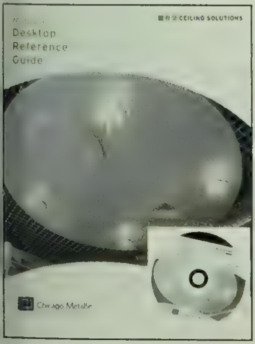
Your Green Home is the latest book by Alex Wilson, founder and president of BuildingGreen. [Wilson and BuildingGreen are contributors to McGraw-Hill's *GreenSource* magazine.] The 256-page book provides homeowners with a range of options for designing and building a green home, covering topics such as water conservation, landscaping, energy efficiency, and building materials. BuildingGreen, Brattleboro, Vt. www.buildinggreen.com **CIRCLE 222**

Inclusive lighting guide

Juno Lighting has published its first *Lighting Product Guide,* a single source of detailed information on the company's nine product brands. The 912-page guide features all of the products within the June, Indy, Alfa, AccuLite, ModuLight, Aculux, NaviLite, DanaLite, and Elate brands. It offers product descriptions, photos, available accessories, and any special ratings, such as Energy Star. Juno Lighting, Des Plaines, Ill. www.junolightinggroup.com **CIRCLE 223**

Wood window inspirations

Jeld-Wen Inspired Choices—A Guide to Custom Wood Options offers inspiration for homeowners and architects who want their custom wood windows to reflect a personal touch. Examples include window designs based on a wedding ring, a sketch of a cathedral window, and a cherished family piano. Jeld-Wen, Klamath Falls, Oregon. www.jeld-wen.com **CIRCLE 224**

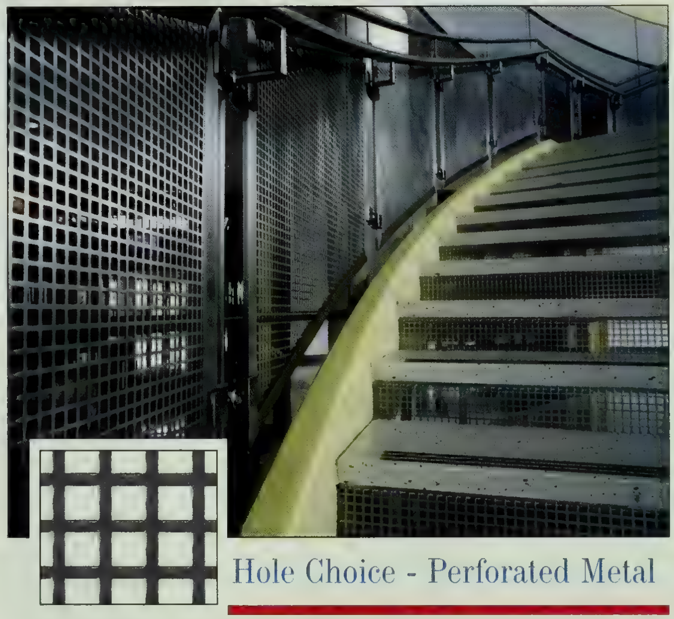


Desktop ceiling guide

Chicago Metallic's comprehensive *Desktop Reference Guide* is intended to be a definitive source for the company's ceiling systems. The guide features pictures, drawings, and specification information for Chicago Metallic metal ceilings, ceiling panels, and grid suspension systems. The guide also comes in a digital version, on an accompanying CD. Chicago Metallic, Chicago. www.chicagometallic.com **CIRCLE 225**

For more information, circle item numbers on Reader Service Card or go to archrecord.construction.com, under Products, then Reader Service.

The Hole Choice



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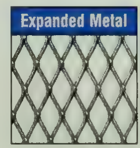

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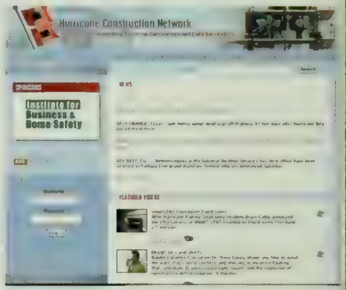
Product Resource: On the Web

www.hurricaneconstruction.net
The Hurricane Construction Network is an online center devoted entirely to educating builders and code officials. It offers a forum and a state-by-state directory to locate news and resources relating to hurricane-resistant construction. The site is a good resource for this timely topic, though the individual state pages could use some beefing up.


Hurricane Construction Network
Institute for Business & Home Safety

www.gardenarchitects.com
Set up as a retail site, this online showroom for contemporary furnishings for gardens, parks, and other outdoor spaces allows specifiers to order planters, bollards, outdoor seating, and more, from renowned manufacturers such as Emeco, Richard Schultz Furniture, and Komplot.

www.steelcase.com
Steelcase's site was recently named to *BtoB* magazine's top 10 great Web sites that excel in communicating with customers and prospects. Criteria for selection included ease of navigation, user-friendliness, and a design that embodies the corporate brand—all of which it offers.

www.antoineproulx.com
This is a basic but practical site to check out the 135-piece Antoine Proulx handcrafted furniture collection by category or collection name. Visitors can download spec sheets or register online to get a library binder that includes a net price book.

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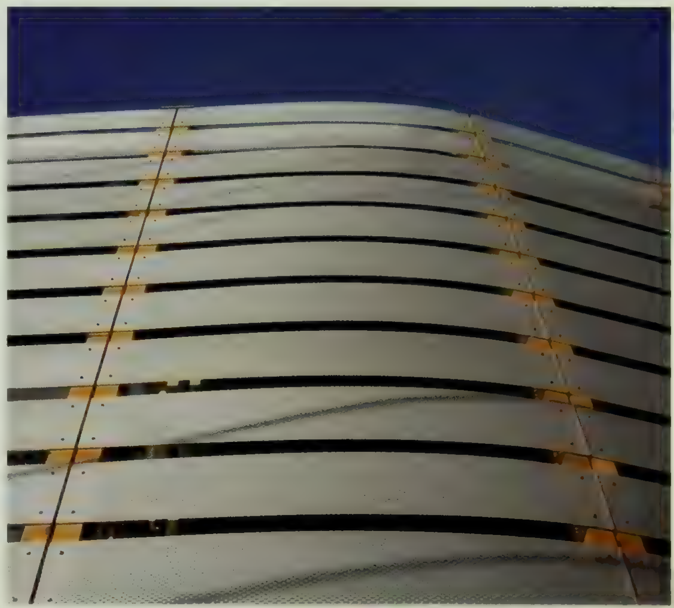

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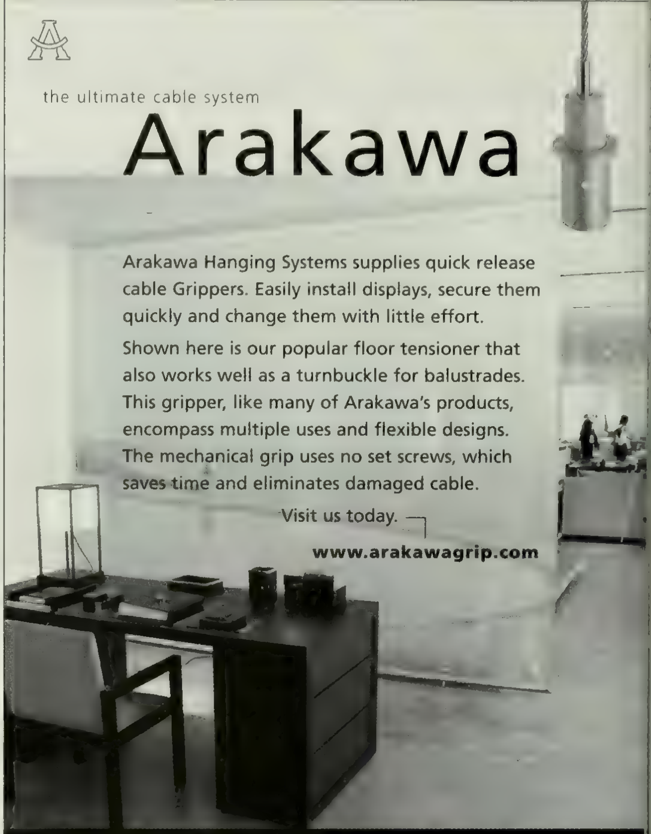

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Dates & Events

New and Upcoming Exhibitions

Hostile Terrain: Reflections on Romania's Industrial Landscape
Baltimore
November 1–December 22, 2006
An exhibition by photographer Paul Burke reveals how the transformation of Romania's social and political structure is reflected in the physical structures that make up its landscape. On view at the AIA Baltimore Gallery. Call 410/625-2585 or visit www.aiabalt.com.

Smith-Miller + Hawkinson Architects
New York City
November 9–December 1, 2006
This exhibition is held through Parson's Department of Architecture, Interior Design, and Lighting. Call 212/229-8955 or visit www.parsons.edu/architecture.

Modernism in American Silver: 20th-Century Design
Miami Beach, Fla.
November 10, 2006–March 25, 2007
This show charts the stylistic design history of modern American production silver while exploring the economic and cultural factors that influenced silver design, manufacture, and marketing across more than seven decades. At the Wolfsonian-FIU. Call 305/535-1001 or visit www.wolfsonian.org.

CA BOOM Design and Architecture Tour
Los Angeles
November 11, 2006
This year's final fall tour will include Mt. Washington and Echo Park. Tours are led by the actual designers and architects. The architects and designers will provide insights on the project, share information on their client's needs, their design process, some of the execution challenges and their solutions, and answer questions. Call 310/394-8600 or visit www.caboomshow.com.

Walking Tours of Downtown D.C.
Washington, D.C.
November 11, 2006
Martin Moeller, senior vice president and curator at the National Building Museum, will lead two different walking tours of downtown D.C., focusing on buildings featured in the new edition of the *AIA Guide to the Architecture of Washington, D.C.*, which Moeller wrote under the auspices of the Washington chapter of the American Institute of Architects. Call 202/272-2448 or visit www.nbm.org.

Toward Substantial Surfaces
Los Angeles
November 13–December 15, 2006
This exhibition of student work documents the research, design scenarios, and models produced for the 2006 spring Advanced Topics Studio led by Heather Roberge in the UCLA Department of Architecture and Urban Design. At Perloff Gallery, UCLA. Call 310/267-4704 or visit www.aud.ucla.edu.

OMA in Beijing: China Central Television Headquarters by Ole Scheeren and Rem Koolhaas

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Dates & Events

New York City

November 15, 2006–February 26, 2007

Scheduled to open for the Beijing Olympics in 2008, the complex comprises three buildings and a media park situated on a 20-hectare site east of Beijing's Forbidden City. The international partnership Office for Metropolitan Architecture (OMA) won the competition for its design in 2002, and the project broke ground in 2004, with OMA partner Ole Scheeren leading its design and execution from Beijing. The exhibition explores the project through an array of graphics, renderings, and explanatory texts, as well as large- and small-scale models. A selection of architectural drawings from New York's Museum of Modern Art collection will situate the project as one of the most visionary built works in the history of modern architecture. At MoMA. Call 212/708-9400 or visit www.moma.org.

Architects Fired
Washington, D.C.

Opens November 17, 2006

Some of D.C.'s most innovative and celebrated architects turn their design sensibilities to the medium of clay. This exhibition is on view at Cross Mackenzie Ceramic Arts. Call 202/333-7970 or visit www.crossmackenzieceramicarts.com.

Seamless
New York City

November 27–December 15, 2006

An exhibition of exclusive works by world-renowned architect Zaha Hadid. At Phillips de Pury and Company's Chelsea headquarters. Call 212/940-1200 or visit www.phillipsdepury.com.

The 2006 National Design Triennial: Design Life Now
New York City

December 8, 2006–July 29, 2007

Inaugurated in 2000, the Triennial seeks out and presents the most innovative American designs from the prior three years in a variety of fields, including product design, architecture, furniture, film, graphics, new technologies, animation, science, medicine, and fashion. On view throughout the museum campus will be the work of 87 designers and firms, ranging from established design leaders such as Apple Computer, architect Santiago Calatrava, and Nike to emerging designers like Joshua Davis, Jason Miller, and David Wiseman. At the Smithsonian's Cooper-Hewitt, National Design Museum. Call 212/849-8400 or visit www.ndm.si.edu.

Ongoing Exhibitions

Learning from North Lawndale
Chicago

Through November 18, 2006

Though only one of Chicago's many neighborhoods, North Lawndale presents a microcosm of historical, cultural, and architectural significance. Along with a gallery of stately greystone homes, elegant parks, synagogues, and churches, North Lawndale was home to such luminaries as Golda Meir, Benny Goodman, Dinah Washington, and Dr. Martin Luther King, Jr. Famed Route 66 travels through it, and it was also the birthplace of the blues music known as the "West Side Sound." This exhibition shows not only the significance of North Lawndale's heritage but also explores how a neighborhood contributes to the life of a city and how, though a neighborhood may change, by reinventing itself it can continue to grow and thrive. At CAF's ArchiCenter. Call 312-922-3432 or visit www.architecture.org.

10th International Architecture Exhibition of the Venice Biennale
Venice

Through November 19, 2006

In its 10th year, this international exhibition is directed by Richard Burdett and dedicated to cities, architecture, and society. Two collateral sections will complement the theme of the international exhibition: *Cities of Stone*, curated by Claudio D'Amato Guerrieri, and *City-Port*, curated by Rinio Bruttomesso. Fifty countries will be represented. Call 39 041 5218711 or visit www.labiennale.org.

Chicago Architecture Foundation River Cruise

Through November 19, 2006

An interesting way to get a close look at all the new high-rise construction talking place along the Chicago River with trained volunteer docents. The cruises start at the southeast corner/lower level of the Michigan Avenue Bridge at Wacker Drive, just below the Hyatt Regency. For more information, visit www.architecture.org.

The Loop: Designs for a Vertical City
Chicago

Through November 25, 2006

Every stage in the birth of the Chicago skyscraper, from the earliest sketches through the final drawings to the drafting linens and blueprints, can be viewed in this exhibition from the historic archives of D.H. Burnham and Company. Unbuilt designs for the city's tallest early office buildings demonstrate the unparalleled creativity of the firm, the world's largest at the dawn of the age of skyscrapers. At ArchiTech Gallery. Call 312/475-1290 or visit www.architechgallery.com.

Investigating Where We Live
Washington, D.C.
Through November 26, 2006
Participants in the museum's summer outreach program, "Investigating Where We Live," both designed this exhibition and filled the gallery with their unique work, including photographs, drawings, collages, poems, stories, and narratives. This year, middle, junior, and senior high school students from the Washington metropolitan area explored three neighborhoods in the southeast quadrant of the city: Capitol Heights, Hillsdale, and Uniontown. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Projects 83: Monika Sosnowska
New York City
Through November 27, 2006
Projects 83 introduces the work of Monika Sosnowska, an artist living in Warsaw, Poland. Sosnowska creates architecturally structured installations that dramatically transform a viewer's perception and experience of a space. She makes her works in response to a given setting, and this installation has been conceived specifically for the Museum of Modern Art. At MoMA. Call 212/708-9400 or visit www.moma.org.

P.A.N. (Progressive Architecture Network)
New York City
Through December 2, 2006
Curated by Winka Dubbeldam with Helene Furjan, this exhibition features the work of five young international architecture offices, whose attitudes toward the discipline are similar. The exhibition will contain models, as well as drawings and photographs, exemplifying the work of each office. At the Frederieke Taylor Gallery. Call 646/230-0992 or visit www.frederieketaylorgallery.com.

Glass: Material Matters
Los Angeles
Through December 10, 2006
One of the first exhibitions of contemporary glass to explore the artistic use of glass in a diverse range of decorative objects, sculpture, conceptual art, and architecture. At the Los Angeles County Museum of Art. Call 323/857-6522 or visit www.lacma.org.

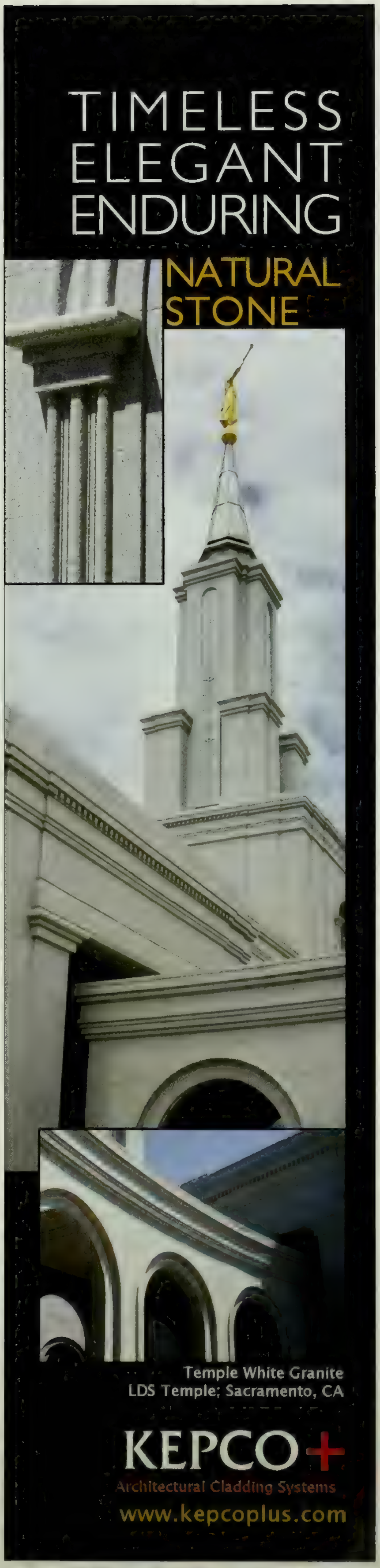
RoTo Architects: Prairie View
Los Angeles
Through December 17, 2006
The exhibition of RoTo Architects' Architecture and Art Building of the Texas Prairie View A&M University features large-scale photographs of the building, a mural-size silk photo print, a large Plexiglas model stand fabricated to house numerous sketch models, and a video documenting the construction and project completion in early 2006. At the Southern California Institute of Architecture (SCI-Arc). Call 213/613-2200 or visit www.sciarc.edu.

Carlos Garaicoa
Toronto
Through December 31, 2006
From a futuristic city made of rice-paper lamps to photographs capturing Havana's deteriorating cityscape, this exhibition features 15 recent works by one of Latin America's most high profile artists, contemporary Cuban artist Carlos Garaicoa. At the Royal Ontario Museum. Call 416/586-8000 or visit www.rom.on.ca.

Structure: The Los Angeles Series
Los Angeles
November 5, 2006–January 5, 2007
An exhibition of national-award-winning artist Ted VanCleave. A selection of 16 of his new photographic images captures Los Angeles in a bold and colorful way that extends beyond representation to become brilliant, almost surreal abstraction. These highly stylized photographs juxtapose vibrant color and the geometry of L.A.'s architectural landscape. At ChopChop Salon/Gallery. Visit www.tedvancleave.com.

Lectures, Conferences, and Symposia

SCI-Arc Lecture Series
Los Angeles
November 1, 8, 15, 29, and December 6, 2006
The program includes lectures by Zbigniew Oksiuta; MADA s.p.a.m.'s Quingyun Ma; Fuad K. Malkawi; and Brendan MacFarlane, as well as a discussion on "Schindler Redux" moderated by SCI-Arc director Eric Owen Moss. At Southern



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California Institute of Architecture (SCI-Arc). Call 213/613-2200 or visit www.sciarc.edu.

Lecture: Materials and Design for a Sustainable Interior
Washington, D.C.
November 1, 2006
Join in a discussion about the latest trends and technologies for your home. Dr. James Seferis, a member of the National Materials Advisory Board of the National Research Council, will explain how materials from the interior of jets can be used in your home. Then interior designer Sharlyn Underwood, will demonstrate how green design can be tangible to everyone regardless of their current knowledge on the subject. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Increasing Your Home's Value and Performance
Washington, D.C.
November 2, 2006
Consumers recognize that upgrading kitchens and baths, and building new space, adds value to a home. But remodeling is also a perfect opportunity to add performance and health improvements that will lower energy bills. Darin Hughes, high-performance-building expert and senior vice president at Green Homes America, will describe how to incorporate smart choices into remodeling to achieve greater value, comfort, and energy cost savings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lecture: Edward Eigen
New York City
November 2, 2006
Edward Eigen's lecture, "Conjuring Comfort: Robert-Houdin's Electric House and other Modern Illusions" is offered through Parsons The New School for Design's department of Architecture, Interior Design, and Lighting. For more information, call 212/229-8955 or visit www.parsons.edu/architecture.

Lecture: The Art of Christian Menn's Bridge Engineering: Spanning from Switzerland to America
Washington, D.C.
November 6, 2006
Dr. Eugen Bruhwiler of the Swiss Federal Institute of Technology in Zurich will discuss the work of Professor Christian Menn, examining projects such as the Bunker Hill Bridge in Boston, the Washington Road Pedestrian Bridge in Princeton, New Jersey, and the Peace Bridge in Buffalo. At the Embassy of Switzerland. Call the National Building Museum for further information, 202/272-2448 or visit www.nbm.org.

Lecture: Mark Mack
Los Angeles
November 6, 2006
A faculty member in the UCLA Department of Architecture and Urban Design since 1993, Mark Mack established MACK Architect(s) in 1984. His current projects include museums and institutional buildings in the United States, hospitality and mixed-use complexes in the Middle East, and housing projects in Austria and Korea. At UCLA Perloff Hall. Call 310/267-4704 or visit www.aud.ucla.edu.

Lecture: Ted Cullinan
Vancouver, B.C.
November 7, 2006
Ted Cullinan of Edward Cullinan Architects will speak as part of the 2006–2007 lecture series produced by the Vancouver League for Studies in Architecture and the Environment. At C300 Theatre. Call 604/683-8588 or visit www.lecturesonarchitecture.net or www.edwardcullinanarchitects.com.

Upstate: Public-Private
Syracuse, N.Y.
November 8, 2006
A symposium at the Warehouse, Syracuse University, School of Architecture. Call 315/443-8238 or visit www.soa.syr.edu.

Lecture: Alvar Aalto: Finnish Architecture & Design
Washington, D.C.
November 8, 2006
Markku Lahti, director of the Alvar Aalto Museum and Foundation, will discuss Aalto's distinguished career, including his Finnish and American buildings and the signature vase that bears his name. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lecture: The Music of the Eye: Highlights from the Royal Institute of British Architects
Washington, D.C.
November 9, 2006
The Drawings Collection of the Royal Institute of

British Architects is one of the world's greatest collections of architectural drawings and related materials, from those by Andrea Palladio to Norman Foster. Charles Hind, who is assistant director of special collections and H.J. Heinz curator of drawings at the RIBA British Architectural Library Drawings and Archives Collection, will discuss a selection of its treasures and consider recently acquired masterpieces. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

2nd Annual Eleanore Pettersen Lecture: Architect Phyllis Lambert
New York City
November 9, 2006
Dedicated to the voices of women in architecture, the annual lecture in honor of Cooper Union alumna Eleanore Pettersen will be presented by architect Phyllis Lambert. Lambert first made architectural history as the director of planning of the Seagram Building in New York (1954–58). Lambert's lecture is entitled "The Social, Ethical, Aesthetic, Cultural, and Financial Significance of 'Wasted' Space: the Seagram Building, 1954–58." At the Cooper Union, The Great Hall. Call 212/353-4220 or visit www.cooper.edu.

Lecture: Wolf D. Prix
New York City
November 10, 2006
Wolf D. Prix of Coop Himmelb(l)au will discuss new and current projects, which are also on view in an exhibition at the Austrian Cultural Forum. At the Donnell Library Center. Call 212/753-1722 or visit www.archleague.org.

Lecture: Jesse Reiser
Los Angeles
November 13, 2006
Jesse Reiser is an assistant professor at the Princeton University School of Architecture and a partner in the firm Reiser + Umemoto in New York City. At UCLA Perloff Hall. Call 310/267-4704 or visit www.aud.ucla.edu.

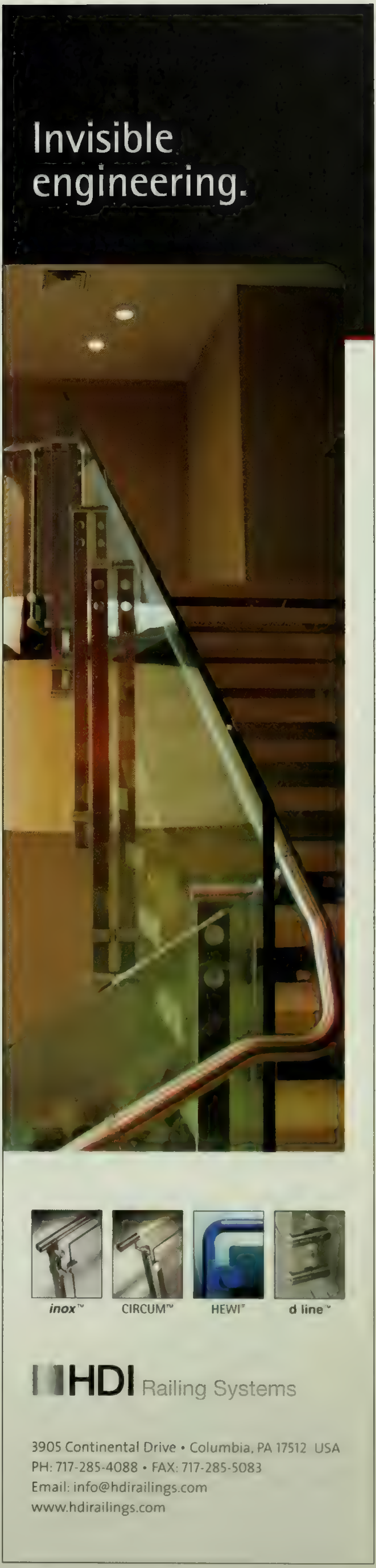
Lecture: Thom Mayne
New York City
November 14, 2006
Thom Mayne will lecture as part of the Architectural League's fall 2006 program, featuring eminent architects, engineers, and designers. At the Great Hall, Cooper Union. Call 212/753-1722 or visit www.archleague.org.

2006 LaGuardia Award Dinner
New York City
November 15, 2006
The Fiorello H. LaGuardia Award recognizes individuals who, through their contributions, exemplify the compassion, courage, and determination of the city's legendary mayor. Proceeds from the evening provide support for over 130 academic scholarships at the university. Senator Hillary Rodham Clinton will deliver a keynote address in tribute to John Tishman, chairman and C.E.O. of Tishman Realty & Construction, and vice chair of the board of trustees of The New School. New School president Bob Kerrey will host the evening. At the Mandarin Oriental New York. Call 212/229-5662 x3568/3570 or visit www.newschool.edu/majorevents/laguardia.

National Award for Smart Growth Achievement
Washington, D.C.
November 15, 2006
Across the country, communities are using a variety of innovative development tools to build neighborhoods that provide safe and decent places to live and work, protect natural and historic places, and offer balanced transportation systems and choices. At the fifth annual ceremony for the National Award for Smart Growth Achievement, the U.S. Environmental Protection Agency will honor up to five communities that are setting the bar in smart growth. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Greenovation: An Expo for the Home
Washington, D.C.
November 18, 2006
Greenovation will help equip visitors to make their home renovation projects environmentally friendly, stylish, and cost-effective. At more than 30 display booths, visitors can interact with experts, watch demonstrations, sample green products, and collect information on green home renovation. Five 45-minute seminars led by nationally recognized experts like Dean Hill, ASLA, Jennifer Roberts, LEED, Jim Sargent, GMB, CGG, Victoria Schomer, ASID, and Annette Stelmack, ASID, will be offered on a drop-in basis. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lecture: Bruce Nichol
Los Angeles
November 20,2006



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Saturday,
November 18, 2006
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Washington, DC

workshops

Dream Green Kitchens
Jennifer Roberts

Creating a Healthy Home
Victoria Schomer

Stylish and Sustainable Interiors
Annette Stelmack

Redesigning a Landscape for Sustainability
Dean Hill

Saving Some Green by Going Green
Betsy Pettit

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Dates & Events

Bruce Nichol is a founding partner of Front Inc., based in New York City. The firm is a collaborative of architects and engineers expert in the provision of facade engineering design and consulting services. At UCLA Perloff Hall. Call 310/267-4704 or visit www.aud.ucla.edu.

Lewis B. and Dorothy Cullman Education and Research Building Opening
New York City
November 28, 2006
The opening of the Lewis B. and Dorothy Cullman Education and Research Building on November 28, 2006, marks the completion of the Museum of Modern Art's expansion and renovation project. Designed by Yoshio Taniguchi, the Education and Research Building will be among the world's top research centers on Modern and contemporary art, housing three curatorial study centers—Architecture and Design, Painting and Sculpture, and Film and Media—as well as the Library and Museum Archives. At MoMA. Call 212/708-9400 or visit www.moma.org.

Lecture: Xaveer De Geyter
Vancouver, B.C.
November 28, 2006
Xaveer De Geyter of Xaveer De Geyter Architects Brussels, Belgium, will be a speaker in the 2006–2007 lecture series produced by the Vancouver League for Studies in Architecture and the Environment. At C300 Theatre. Call 604/683-8588, visit www.lecturesonarchitecture.net, or www.xdga.be.

Eric R. Multhauf Lunchtime Lectures
Chicago
Wednesdays, through November 29, 2006
These free lectures include David Mann on "The Restoration of Louis Sullivan's Ganz Hall at the Auditorium Building"; Tim Wittman on "Sullivan and the Synthesis of Nature and the Machine"; Suzanne Morgan on "The Transformation of Synagogues to Baptist Churches in Chicago"; Lee Bey on "The Politics of Architecture/The Architecture of Politics"; Ben Helphand on "Building the Bloomingdale Trail"; Meredith Mack on "Renzo Piano's Modern Wing at the Art Institute of Chicago"; Neal Samors on "Chicago in the Sixties: Remembering a Time of Change"; and Mary Brush on "Klein and Hoffman: Recent Work". At CAF's ArchiCenter. Call 312/922-3432 or visit www.architecture.org.

Lecture: Michael Rock
New York City
November 30, 2006
Michael Rock will lecture as part of the Architectural League's fall 2006 program, featuring eminent architects, engineers, and designers. At the Great Hall, Cooper Union. Call 212/753-1722 or visit www.archleague.org.

Lecture: Jorge Silvetti
New York City
December 5, 2006
Jorge Silvetti will lecture as part of the Architectural League's fall 2006 program of lectures by eminent architects, engineers, and designers. At the Great Hall, Cooper Union. Call 212/753-1722 or visit www.archleague.org.

Design Miami
Miami
December 7–10, 2006
The international design forum brings together influential dealers, designers, collectors, curators, and critics in a week-long show presented concurrently with the Art Basel fair in Basel, Switzerland. At The Moore Building in the Miami Design District. Call 305/572-0866 or visit www.designmiami.com.

ADA: Accessibility Provisions for Multifamily Residential Projects
Los Angeles
December 8, 2006
Presented by Isam Hasenin, chief building official for the City of San Diego, this seminar will focus on an update on state accessibility provisions; the latest federal and state accessibility provisions covering multifamily projects; special site accessibility challenges; the application of parking provisions; elevator requirements; many practical examples and case studies, and more. At AIA Los Angeles. Visit www.aialosangeles.org.

Construction of the World's Longest Tunnel
Washington, D.C.
December 12, 2006
Ambros Zgraggen, deputy director of communications at AlpTransit Gotthard, a subsidiary of Swiss Federal Railways, will discuss the project AlpTransit. In particular, he will focus on the progress of the Gotthard Base Tunnel, a flat rail link for future travel through the Alps and, at 34 miles, the world's longest tunnel. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Lecture: EccentriCity: Intriguing Characters in Washington's Architectural History
Washington, D.C.
December 14, 2006
In researching and writing the new edition of the *AIA Guide to the Architecture of Washington, D.C.* (Johns Hopkins University Press), Martin Moeller, senior vice president and curator at the National Building Museum, became fascinated by the many colorful characters, "including architects, clients, residents, and politicians," who helped shape the face of the nation's capital. In this lecture, he will talk about the intriguing people closely associated with noteworthy Washington buildings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

10th Conference of the International Association for the Study of Traditional Environments (IASTE)
Bangkok, Thailand
December 15–18, 2006
"Hyper Traditions" is the theme of this year's conference. It will explore how globalization and new information technologies have contributed to the de-territorialization of tradition, challenging the idea of tradition as an authentic expression of a geographically specific, culturally homogenous, and coherent group of people. At Thammasat University. Call 510/642-6801 or visit www.arch.ced.berkeley.edu/research/iaste.

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Competitions

2007 Palladio Awards
Deadline: November 15, 2006
Submissions are now being accepted for the 2007 Palladio Awards. The sixth annual competition will recognize outstanding work in traditional design for commercial, institutional, and residential projects. The Palladio Awards program is coproduced by *Traditional Building* and *Period Homes* magazines. For additional information, visit www.palladioawards.com.

2007 AIA Housing Awards: Call for Entries
Registration deadline: November 17, 2006
Submission deadline: December 15, 2006
The AIA Housing Awards recognize the best in housing design in the following categories: One and Two Family Custom Residences—custom and remodeled homes for specific clients; One and Two Family Production Homes—homes built for the speculative market; Multifamily Housing—both high- and low-density projects for public and private clients will be considered; and Special Housing—housing that meets the unique needs of other specialized housing types such as single room occupancy residences (SROs), independent living for the disabled, residential rehabilitation programs, domestic violence shelters, and other special housing. Call 202/626-7586 or visit www.aia.org/awp_housing.

The 2006–07 Kenneth F. Brown Asia Pacific Culture and Architecture Design Award
Registration deadline: December 10, 2006
Submission deadline: January 31, 2007
The program recognizes outstanding examples of contemporary architecture in the Asia Pacific region. For further information, call 808/956-3515 or visit www.arch.hawaii.edu.

International Design Competition for a Cultural Center in Nicosia, Cyprus
Credential submission deadline: December 11, 2006
Design Proposal submission deadline: March 5, 2007
The Cultural Center will provide a focal point for the island's performing arts, showcasing national and international performances of music, dance, opera, musical theater, and the spoken word. The competition is open to all qualified architects. For further information, visit www.ccf.org.cy.

Bezalel Academy of Arts and Design, Jerusalem—International Architecture Competition
Registration: December 11, 2006–January 11, 2007
Architects from around the world are invited to participate in the Bezalel Academy International Architecture competition to design the new

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campus in the center of Jerusalem. For more information, visit www.bezalel-competition.org.il.

2007 Arthur Ross Awards for Excellence in the Classical Tradition

Deadline: December 15, 2006

In May, the Institute of Classical Architecture Classical America will hold its annual Arthur Ross Awards at New York's historic University Club. The ICA is now accepting nominations for consideration by this year's Ross Awards jury, to be chaired by Bunny Williams. Visit www.classicist.org.

2007 Rudy Bruner Award

Application deadline: December 18, 2006

The Rudy Bruner Award for Urban Excellence seeks to discover special places that have solved urban problems with creative solutions. For more information, call 617/492-8401 or visit www.brunerfoundation.org.

2007 International Bamboo Building Design Competition

Registration deadline: December 31, 2006

Submission deadline: January 15, 2007

Bamboo Technologies of Maui has launched the first International Design Competition for Structural Bamboo Buildings. Some of the winning entries will be chosen for manufacture by the world's premier builder of international-building-code-approved bamboo homes. The competition is open to architects, builders, designers, and students anywhere in the world. Visit www.bamboocompetition.com.

Living Steel International Architecture Competition

Deadline for application: January 12, 2007

Architectural firms of all sizes, scope, and geographic locations are encouraged to apply for this competition, which was launched to develop innovative approaches to meet sustainable housing needs, addressing the economic, environmental, and social aspirations of a growing world population. Three winning entries will be chosen by an independent jury composed of internationally respected architects Glenn Murcutt, Charles Correa, Andrew Ogorzalek, Jaime Lerner, James Berry, and Nicholas de Monchaux. For more information, visit www.livingsteel.org.

2007 SEGD Design Awards Program

Deadline: January 31, 2007

The Society for Environmental Graphic Design (SEGD) annual design competition honors the best in environmental graphic design. Projects include themed environments, way-finding and signage, place-making projects, mapping, public art, identity programs, architectural graphics, exhibits, and retail. For more information, visit www.segd.org.

2007 Aurora Awards

Deadline: March 9, 2007

Builders and architects who have demonstrated excellence and creativity when designing hurricane-resistant structures are invited to submit proposals to this design competition recognizing projects in the southeastern United States. Solutia, a manufacturer of polyvinyl butyral (PVB) interlayers for impact-resistant glass, is sponsoring a new category in the competition: The Safe & Secure Award will recognize builders, designers, architects, and other home-building professionals who incorporate—and meet or exceed code requirements for—impact-resistant windows and doors for safety, and who use other design elements that minimize the effects of hurricanes and other disasters on residential structures. Visit www.theauroras.com.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.

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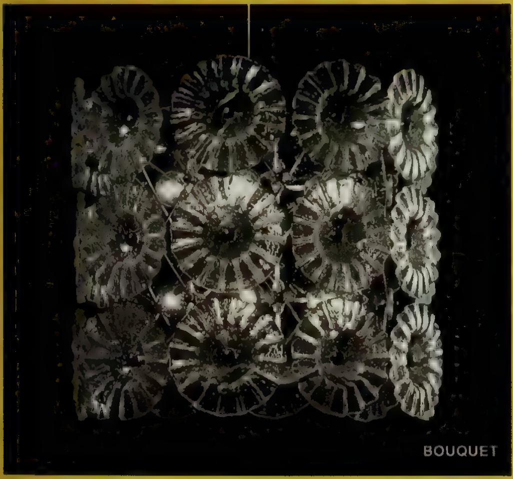

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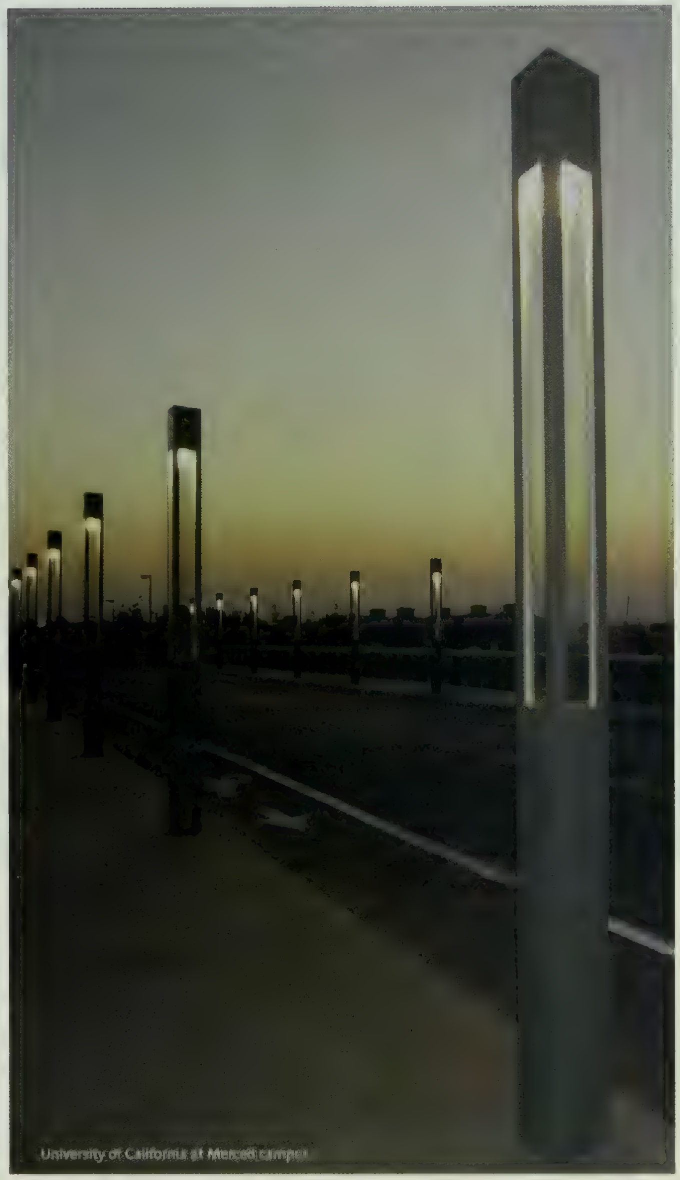

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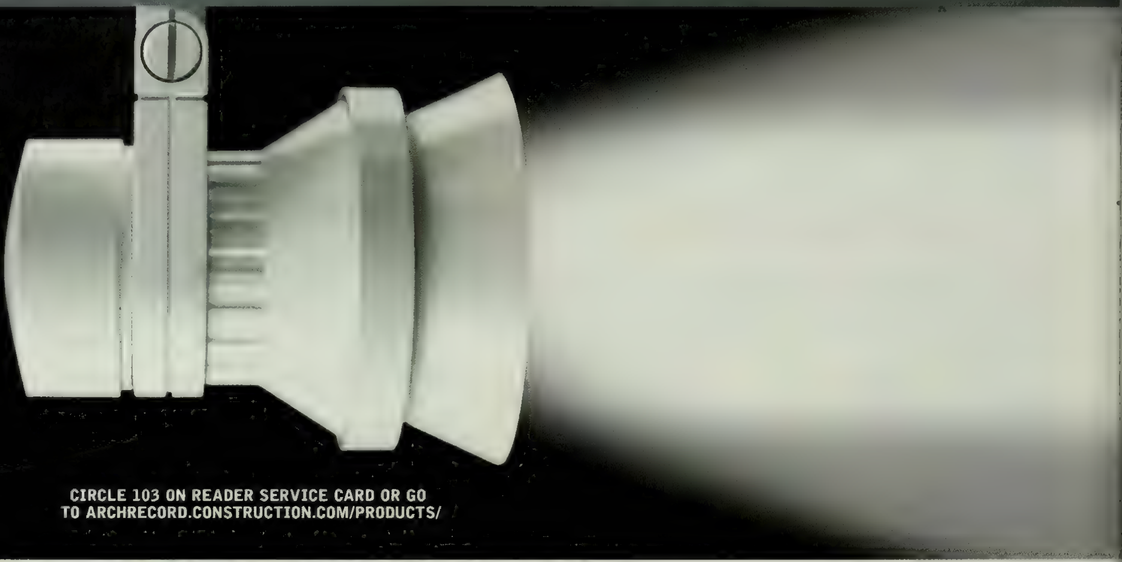

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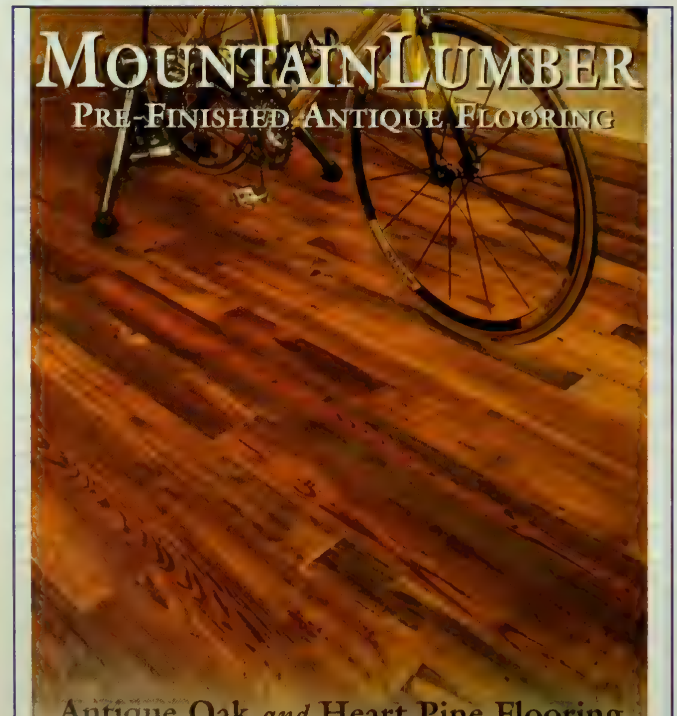

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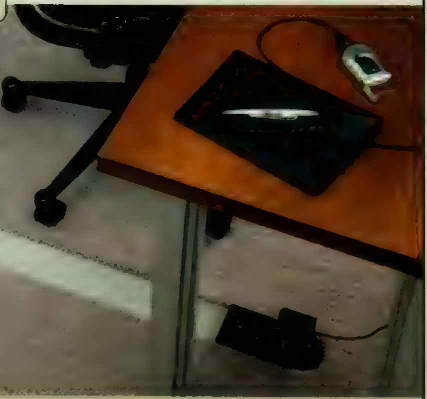

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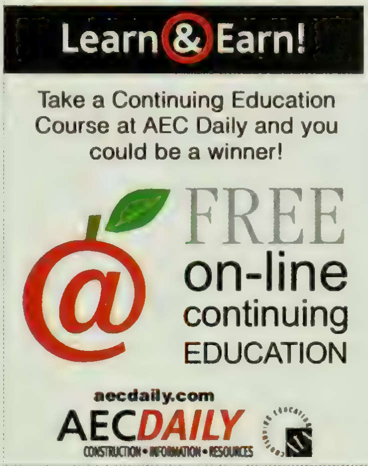
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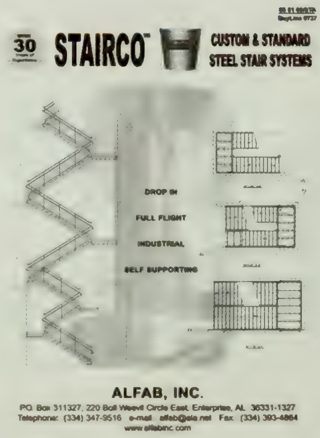
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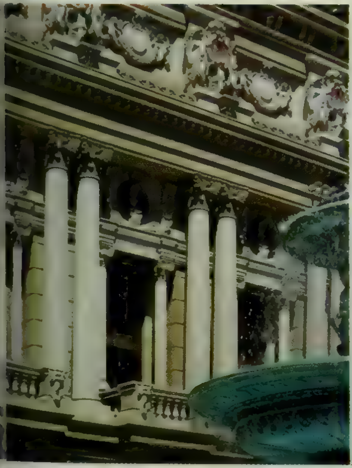

Melton Classics provides the design professional with the most comprehensive selection of quality architectural products in the industry, including architectural columns, balustrades, mouldings, cornices, and a wide array of architectural elements. Architectural columns are available plain or fluted, load-bearing or column covers, round or square in fiberglass, fiberglass/marble composite, synthetic stone, cast stone, GFRC, and wood for paint or stain. Melton Classics offers maintenance-free balustrade products ideal for any application.

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| Circle Reader Service #158

Insulated Composite Spandrel Glass Panel

Mapes Industries, Inc.

MapeSpan is a laminated composite glazing panel that combines a heat strengthened glass with ceramic frit on the #2 surface, an insulating core, and a finished interior. Laminated wall panels can be glazed in a monolithic unit from a single source which eliminates costly field labor. Specialty panels to meet fire and sound codes are also available. Interior finishes included porcelain on aluminum, Kynar, anodized and baked enamel. Consult their web site for design information or contact the factory at the number below.

800-228-2391
www.mapes.com

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T: (212) 904-2010 / F: (609) 426-713
deidre_allen@McGraw-Hill.co

Draining Air & Water Barrier

Valeron Strength Films

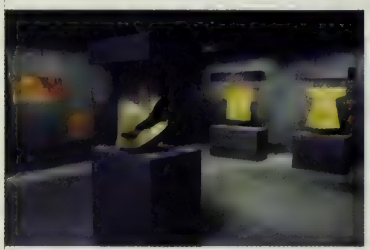
Introducing the first and only multi-directional, water-resistive drainage barrier. Valéron Vortec™ EVD is engineered with a patent-pending, multi-directional pattern of dimples and bumps that promotes water drainage by channeling water away from a structure's wall surface. Unlike traditional housewraps which are smooth surfaced and allow "ponding" to occur near joints, Vortec™ allows this moisture to drain out of the wall, dramatically reducing the chance for mold and mildew growth.

800-VALERON
www.valeronvortec.com

| Circle Reader Service #162

Anti-Reflective Glass

IGT Glass



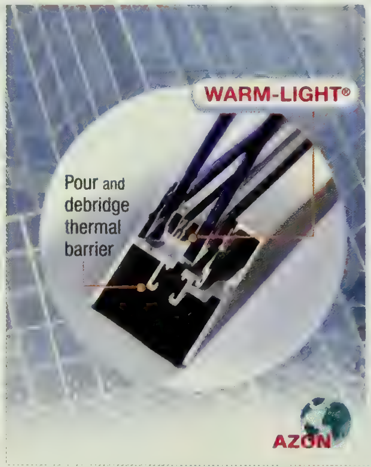
Luxar anti-reflective glass is perfect for any glass application where glare and reflection are not wanted. Luxar reduces glare and reflection to less than 0.5%. It is perfect for museums, store fronts, stadiums, restaurants, projection rooms and display cases. It is available on low iron float glass for maximum clarity in 2mm to 12mm thicknesses to meet any project requirement.

480-767-8220
www.luxar.ch

| Circle Reader Service #165

Extreme Performance Insulating Glass

AZON USA INC.


WARM-LIGHT®
Pour and debridge thermal barrier
AZON

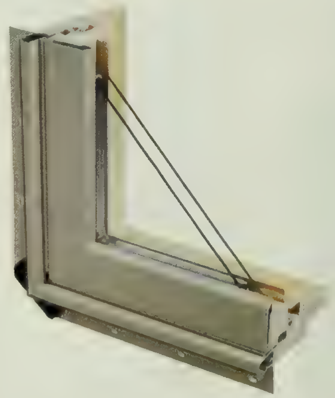
Warm-Light® spacer for insulating glass provides a more comfortable interior environment, reduces thermal conductivity and condensation on the glass surface while lowering utility costs. Azon is the global leader in developing technology for the manufacture of thermal barrier aluminum fenestration, commonly referred to as the pour and debridge method.

800-788-5942
www.warmedge.com

| Circle Reader Service #163

Optimal Performing Casement

Kolbe



Kolbe provides the ultimate in style and performance with the Ultra casement. Redesigned to include an extruded aluminum sash to match the frame, corrosion resistant stainless steel hardware and more. Quality materials and innovative engineering allow for an optimal performing window with some units achieving ratings up to DP85.

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www.kolbe-kolbe.com

| Circle Reader Service #166

Versatile Windows

Fenevations, LLC

Fenevations manufactures MegaWood, Infinity Bronze, and SteelView windows. Megawood offers fine hardwoods with furniture-grade finishes, combined with heavy gauge bronze or hand welded, aluminum extruded exteriors. Infinity Bronze is a unique thermally broken solid bronze system offering beauty, style and traditional sightlines. SteelView offers stainless steel beauty for contemporary designs.

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| Circle Reader Service #164

Translucent Daylighting Panels

Major Industries

Guardian 275® Translucent Daylighting Panels long recognized for their energy efficiency, light management qualities, and cost-effectiveness are now better than ever. New technology Guardian 275® Translucent Daylighting Panels feature Ultimate Series™ exterior face sheet for great color stability, longer life, and their best-ever performance for your translucent daylighting needs.

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Roof Enclosures & Skylights

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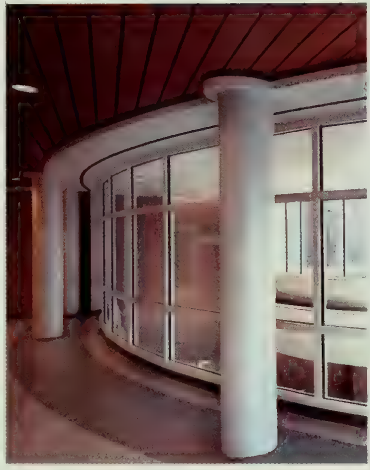
OpenAire designs, manufactures and installs retractable roof enclosures, operable and large span skylights worldwide. At the touch of a button, motorized panels retract to open up to 50% or more of the roof area. These thermally broken aluminum structures can span over 140-ft. and come in custom designs (domes, barrel vaults, bi-parting, etc.). These enclosures and operable skylights are perfect for indoor waterparks, pool enclosures, atria, shopping concourses, anywhere that you want to bring the outside in.

800-267-4877
www.openaire.com

| Circle Reader Service #168

Fire Rated Aluminum Framing

SAFTIFIRST



With SAFTIFIRST's SAFTIfire Frames, rated 45-min. to 2-hr., you can create the maximum barrier against fire and radiant heat while providing attractive framing that meets all the temperature requirements of the national building codes. Design flexibility of multiple forms makes for easy installation, creating a sleek, attractive profile.

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| Circle Reader Service #171

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Pilkington

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www.pilkington.com

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Fire-Rated Glass & Framing

Technical Glass Products

Technical Glass Products has been a national distributor of fire-rated glazing and framing materials since 1980. They are committed to providing reliable, rapid service and outstanding product options. Their knowledgeable staff can assist you in determining which product is right for your application. Contact Technical Glass Products at 1-800-426-0279 or www.fireglass.com.

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www.fireglass.com

| Circle Reader Service #172

Fire-Resistant Glass

Pilkington North America - Fire Protection Glass

Pilkington Pyrostop™ is available with many options including opaque films, colored interlayers, surface designs and lightly sandblasted. Pilkington Pyrostop™ can also be combined with any of the Pilkington products to meet your design needs. For more information contact Technical Glass Products or visit their web site.

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| Circle Reader Service #170

Heated Glass Windows

Thermique Technologies, LLC

Thermique™ heated windows are designed to improve the comfort, value and energy-efficiency of a luxury home, office space, hotel or restaurant. In cold weather, ordinary windows are a source of drafts and chills, but Thermique™ glass heats up to ensure a warm, comfortable environment. America's only UL® Approved heated window.

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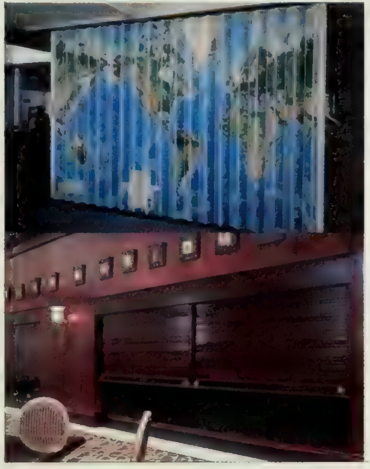
Doors for Interior Architecture

Woodfold-Marco Mfg., Inc.



Some will say that nothing is more beautiful than wood. Woodfold-Marco would agree. Woodfold custom made accordion and roll-up doors (available in hardwood and non-hardwood finishes as well) are both functional and beautiful. Woodfold-Marco has models available for use as sight, security, and acoustic applications. Its solid hardwood roll-up doors coil conveniently overhead. And, to assure on time completion of your projects, Woodfold-Marco has the industry's best production cycle. Fax number 503-357-7185

503-357-7181
www.woodfold.com/AR

| Circle Reader Service #174

Faux Stone Panels

Architectural Products by Outwater, LLC

Achieve the look of authentic stone, brick, wood and many other realistic surfaces for a fraction of the cost with Outwater's innovative 2-ft. by 4-ft. high-density polyurethane FauxStone Panels, designed and manufactured with exacting realism to visually and texturally replicate the original building materials from which they have been modeled. Ideally suited for interior or exterior use in a vast number of commercial and residential applications, Outwater's maintenance free FauxStone Panels are lightweight, impact resistant, and dimensionally stable as well as impervious to adverse climate and weather conditions.

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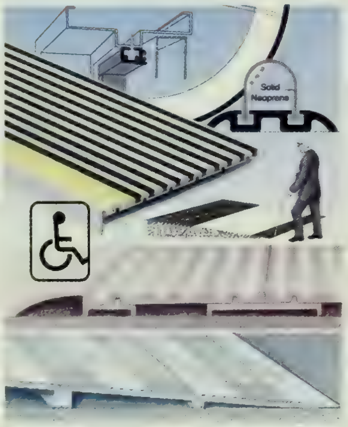
www.outwater.com

| Circle Reader Service #177

ADA & ANCI Compliant Access Systems

Zero International, Inc.



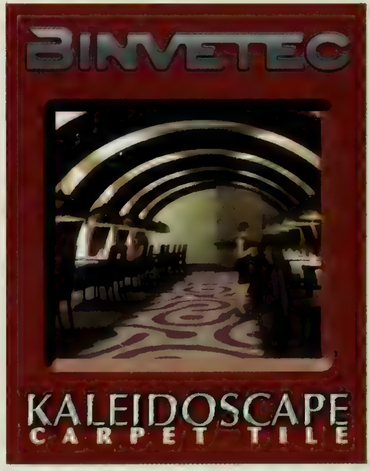
ZERO International manufacturers a complete line of ADA and ANCI compliant components: ramps, saddles, thresholds, wheel chair accessible shower entry, "light-spring" action head/jamb and door bottom gaskets, stair nosings and detectable warning strips, unigear and unipin hinges. All available in their catalog, on their website or through their engineering department.

800-635-5335
www.zerointernational.com

| Circle Reader Service #175

Carpet Tile

Binvetec, LLC



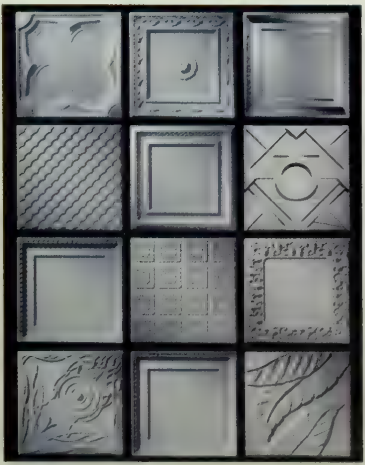
Kaleidoscape Carpet Tile with TractionBac non-adhesive installation system is the only modular floor covering solution that can create a wholly non-repetitive and free-flowing pattern from a single tile design. They can also be arranged in groups to create myriad patterns. Available in nine color combinations, they can be used to create entire wall-to-wall floor coverings, runners, or assembled together to make six-tile area rugs (6-ft. by 9-ft.).

714-731-2369
www.binvetec.com

| Circle Reader Service #178

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

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www.aboveview.com

| Circle Reader Service #176

Decorative Wall Panels

Crane Composites, Inc. (formerly Kemlite Company, Inc.)

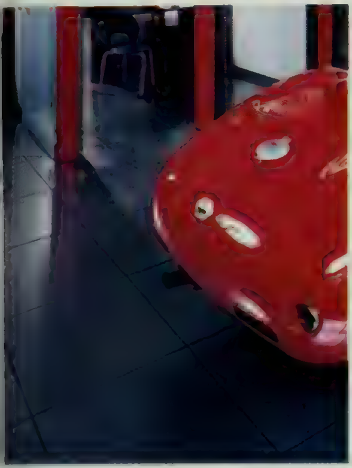
The look of tile, The ease of FRP. The frpDesign Solutions Matrex panel has a high gloss decorative surface in solid and granite colors. Matrex fiberglass reinforced plastic (frp) panels are available with 4-in. by 4-in. sealed simulated grout lines or without grout lines and are easy to install and maintain. For more information, visit Kemlite on the web.

888-332-6377
www.frpdesignsolutions.com

| Circle Reader Service #17

Stainless Steel Floor System

Gage Corporation



The Gage Stainless Steel Floor System is a durable, high-tech flooring solution designed in Italy for purity of form and ease of installation. The embossed stainless steel finish has been specifically designed to prevent traffic wear and is virtually indestructible. "The system is the solution."

866-855-4243

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Porcelain Wall Tiles

Viva Ceramica

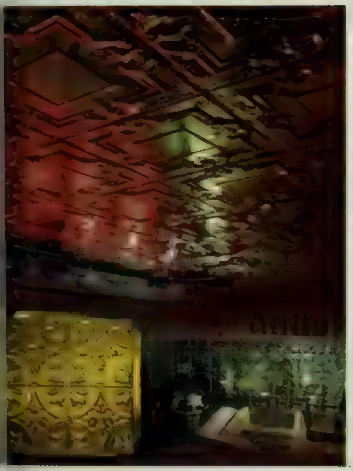
Even though Viva Ceramica had introduced Central Station at Cersaie 2005 as a color through porcelain floor tile series, it was easy to convert it to a wall covering. It's just so adaptable with its suggestions of metal and its decorative squares and circles in crackle glaze. And both the big diameter and the 30 cm square are ideal for minimalist mosaic decors in bathrooms or on walls in public areas.

www.cerviva.it

| Circle Reader Service #183

Authentic Tin Products

The American Tin Ceiling Co.



One of the largest manufacturers of authentic tin ceilings panels, offering over 30 of the finest embossment patterns and over 50 high quality powder coat finishes. Exclusive distributors of the innovative SnapLock™ and 3D Dropin tin ceiling panels. Eight designers provide free phone consultation six days a week. Orders shipped direct worldwide. Fax number 941-359-8776

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Architectural Sun Control

ASCA, Inc.

ASCA, Inc. provides an infinite assortment of efficient and cost effective sun shading solutions. While functionally reducing heat gains upwards to 80%, ASCA's sun control systems provide a striking architectural statement. Custom or traditional, intelligent heat and light control is now afforded to every designer through ASCA's creative component design and versatility of manufacturing techniques. Fax number 603-433-6700 Email info@asca-design.com

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Reduce Impact Noise

The Noble Company

NobleSeal® SIS is a sheet membrane that reduces the impact noise produced by hard surface flooring (like tile and hardwood floors). SIS is only 3/64-in.-thick so it minimizes problems with transitions and the need to alter door and cabinet heights. It is effective at reducing noise (IIC=62; STC=59). SIS can be installed over all common substrates, even gypsum concrete and radiant heating systems. SIS can also protect thin-set tile from cracking and provide waterproofing. Visit their web site. Email richard@noblecompany.com

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www.noblecompany.com

| Circle Reader Service #182

Architectural Sheetmetal Products

CopperCraft

CopperCraft manufactures a complete line of high-quality architectural sheetmetal products including ornamental dormers, roof vents, roof drainage products, conductor heads, steeples, cupolas, and spires, as well as items which are custom built to your specifications. Design, engineering, testing, and fabrication methods that meet stringent structural and performance standards make the difference. You get unsurpassed quality, delivery, and custom service including a nationwide network of representatives.

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www.coppercraft.com

| Circle Reader Service #185

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Custom Home Accessories, Inc.

Regency has enhanced the security of the "Regency Collection" of decorative CBU mailboxes to meet or exceed the newest USPS standards. High-strength, heavy-gauge doors and high security locks help resist even the most determined vandal or thief. Units come in USPS gray, black or bronze. Custom powder coat colors are also available. Patent #D528,734.

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www.mailboxes.info

| Circle Reader Service #186

Unique Storage & Filing

Aurora by Richards-Wilcox

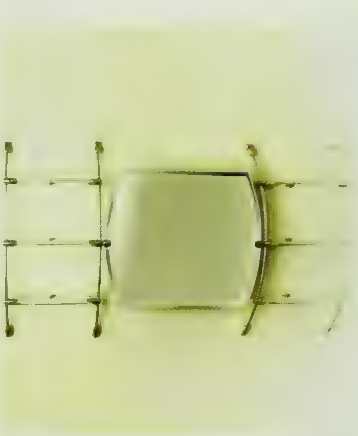
Aurora® Times-2 Step-Up, Step-Down™: It's a simple concept, two tall "steps" on the upside, two small steps on the "downside" to give you plenty of compact multimedia storage and filing. The task area is great for printers, fax machines, copiers, phones, mail meters and more. Units come as a bank of four in letter or legal sizes in an eco-friendly finish in 26 beautiful colors. Order a variety of different heights and accessories.

800-877-8456
www.aurorastorage.com

| Circle Reader Service #189

Vanity Shelves

Gyford Productions

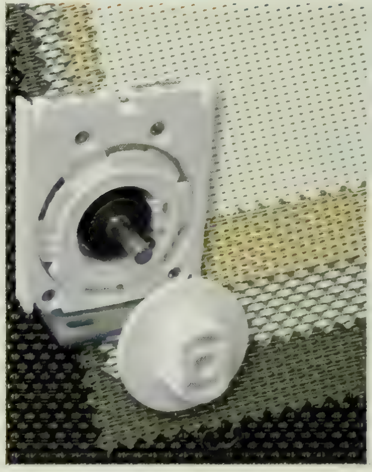


Gyford's new Eclipse Vanity Shelves complement the "Archer" and "Eclipse" shelf units in a compact and versatile new design. Made from stock, satin finished aluminum components, Eclipse Vanity Shelves flank a bevel-cut mirror in this example but the sizes and options are endless.

| Circle Reader Service #187

Silver Certification for Solar Shading System

MechoShade Systems



Mecho®/5 with EcoVeil™ is the first complete solar shading system to receive Silver Certification from MBDC. With this certification, MechoShade Systems has set a new industry standard for high quality and eco-friendly technology. For more information on Mecho®/5 with EcoVeil™ visit www.mechoshade.com or call 718-729-2020.

718-729-2020
www.mechoshade.com

| Circle Reader Service #190

Art Presentation

Walker Display Incorporated

Life's all about change and so is Walker Display when it comes to art presentation. The Walker system frees you to explore all your options. No-More-Holes frees you to rearrange your artwork with ease and speed. Embrace change!

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Deep Seating Club Chair

Modern Outdoor Inc.

New to the Etra line is this deep seating club chair. Designed for comfor and style, the deep seating line als includes a sofa and ottoman. The offer four complete lines of high style, clean-lined environmentall conscious outdoor furniture. Th Modern Outdoor Collections are commercial grade products designe for use in all manner of public spaces– restaurants, hospitality, parks, resorts hotels...yet have an aesthetic that i perfect for a residential client's backyard setting. View the entirety of thei collection online.

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Balanced design that is light and airy. Moving sculpture... The San Francisco ceiling fan is a GOOD DESIGN Award winner by Mark Gajewski. Whisper quiet, powerful, reliable and beautifully made. Also available without a light kit. Lifetime warranty. Buy great fan and lighting designs on G-Squared Art's website or call Monday through Friday from 7am to 5pm PST.

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Integration of the light column form with the se'lux patented MTR refractor technology. MTR refractors incorporate the light-bending properties of the prism resulting in comfortable, glare-free illumination. Three distinct column styles are available in a variety of materials and finishes, and are supplied in standard heights of 12-, 14-, and 16-ft. Lamping consists of one to four T-8 fluorescent lamps, with H.I.D. possible. This fixture is ideal for high traffic pedestrian areas such as sidewalks, building courtyards, malls, airports, parks, etc. Fax number 845-691-6749

845-691-772 ext. 38
www.selux.com/usa

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www.lithonia.com/omero

| Circle Reader Service #193

Traditional & Architectural Lighting Products

Sternberg Lighting

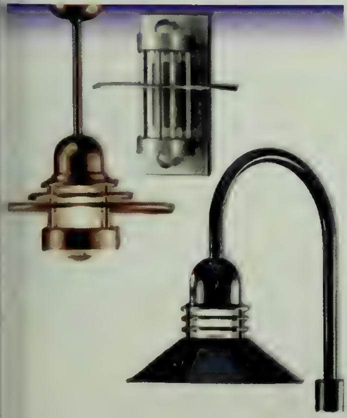
STERNBERG LIGHTING manufactures traditional and architectural lighting luminaires, poles, bollards, site amenities and landscape furnishings, including street clocks, street bells, traffic signs, street signs, cast park benches, trash receptacles and mailboxes. Luminaires can be specified with high performance lamping reflectors and refractors. New STAR-SHIELD roof optics and OPTI-SHIELD louver optics NIGHTSKY™ systems are available. Lighting and other products used by cities, towns, main streets, parks, train stations, shopping centers, colleges, banks and more. Call, fax or e-mail for their 200-page catalog.

800-621-3376
www.sternberglighting.com

| Circle Reader Service #196

Energy-Efficient Lamping Options

uraline Products Company



The versatile, modern design of the Helōs series enhances a range of commercial and residential spaces, both interior and exterior. Fixtures are constructed of aluminum and available with energy-efficient lamping options, including compact fluorescent and HID. Offered in pendant, ceiling, wall and post-mount configurations in a full palette of painted and metallic finishes. Custom colors on request.

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Concealite Life Safety Products

Tired of looking at fire strobes and horns? Conceal-Alarm will hide those strobes and horns until they are needed. During normal operation, the strobe and/or horn hides behind a door decorated to match the wall on which it is mounted. Upon activation, Conceal-Alarm rotates to reveal the activated appliance. Visit www.concealite.com or call.

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| Circle Reader Service #197

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If qualified and interested, please indicate position title, forward resume and work samples to: bsnss_office@yahoo.com

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Cornell University

The Department of Architecture in the College of Architecture, Art, and Planning at Cornell University invites applications for one or more positions in each of the following areas: (1) environmental systems; and (2) design within the area of digital and emerging technologies. Appointments may be filled for fixed terms, typically one semester to three years, or as tenure track or tenured positions, depending on the qualifications and interests of the candidates.

* Environmental Systems

Desirable qualifications include a strong record in teaching environmental systems; evidence of significant research and/or scholarship; graduate and/or professional degrees in architecture and environmental systems; and an interest in integrating environmental technologies and design practice.

Applications should be sent to Environmental Systems Search, Department of Architecture, 143 E. Sibley Hall, Cornell University, Ithaca, NY 14853, and should include the following items: (a) letter of application including a brief statement outlining teaching and research/scholarship objectives; (b) curriculum vitae; and (c) contact information (phone, mail, email) for three referees.

* Design within the Area of Digital and Emerging Technologies

Desirable qualifications include a strong record in teaching architectural design; graduate and/or professional degrees in architecture and related fields; and evidence of significant research related to design and contemporary practice in one or more of the following areas: fabrication/production, visualization, networking/communication, and interactive environments.

Applications should be sent to Digital Design Search, Department of Architecture, 143 E. Sibley Hall, Cornell University, Ithaca, NY 14853, and should include the following items: (a) letter of application including a brief statement outlining teaching and research/scholarship objectives; (b) curriculum vitae; (c) contact information (phone, mail, email) for three referees; and (d) portfolio.

Applications for both positions will be considered beginning November 15, 2006. Appointments are expected to begin Fall 2007.

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large, established Commercial Architectural Firm. Req's architectural degree, registration, w/ 15+ years of Architecture office experience, including executive management w/i a large national firm. Acquisition/merger exp. a plus. This Key player will provide executive leadership along with the CEO & CFO to expand and grow this dynamic firm. Relo/benefits/perks

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DEPARTMENT OF ARCHITECTURE
BALL STATE UNIVERSITY - MUNCIE, INDIANA

The College of Architecture and Planning houses programs in architecture, landscape architecture, urban planning, and historic preservation. The Department invites candidates interested in helping to shape and implement its new 4 + 2 curriculum. This master's of architecture program is built on interdisciplinary reflective practice and a set of course clusters that offer students concentrations in sustainability, urban design, landscape architecture historic preservation and making/digital fabrication Also, the Department offers a post-professional master's of architecture and a master's of science in historic preservation. Four tenure-track positions available August 17, 2007. Responsibilities: teach in and conduct scholarly investigations in one or more of th following curricular areas - environmental systems sustainable systems, digital media and fabrication social and cultural landscapes, urban and communit based design. Minimum qualifications: termina degree in architecture or allied field; qualification t teach at both the undergraduate and graduate levels record of scholarly and/or professional/creativ work. Preferred qualifications: professional registration advanced degree(s); teaching experience and/or significant professional experience in the area o expertise. Send in hard copy a letter of interest, curriculum vitae, contact information for thre references, and portfolio of professional and/or student work to: Dr. Stephen Kendall, Professor o Architecture, Chair, Architecture Search Committe Department of Architecture, Ball State Universit Muncie, IN 47306. Tel: 765.285.1900; Emai skendall@bsu.edu Additional supporting material will be requested as needed. Review of application will begin mid January, 2007, and will continue unt the positions are filled. (www.bsu.edu/architecture Ball State University is an equal opportunity, affirmative action employer and is strongly and activel committed to diversity within its community.

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Architectural Design + Theory and Practice

The department is seeking one or two excellent design studio faculty members with additional interests/expertise in teaching subject-area courses in areas including but not limited to: theory and criticism, sustainability, housing, building construction and fabrication, and traditional and digital media.

Architectural Design + Structures or Construction Technology

The department is seeking candidates who address the synthesis of structure, construction and architecture in their teaching, research and/or creative work and have a strong interest in helping students learn to integrate building technology principles into architectural design. This position involves teaching required courses in the structures and construction curriculum and architectural design studios at the graduate and undergraduate levels.

Interior Design + Theory and Practice

The Interior Architecture program in the Department of Architecture is seeking an experienced designer who can be an effective and inspiring teacher in the design studio. The applicant will also be expected provide expertise in one or more areas within the subject area curriculum that includes but not limited to: interior design theory, design media (digital and traditional) construction materials, detailing and documents, color theory, and furniture design.

Visiting Fellowship in Architectural Design

The department is seeking post-graduate and/or professional candidates with an interest in developing a career in teaching. The teaching fellowship offers the opportunity to gain experience in studio instruction and to develop an area of subject course specialization. Expectations include teaching design studios; teaching or co-teaching approved subject area courses, for a total of five courses on a three-term nine-month appointment.

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Application process

Complete descriptions of the individual positions and specific application requirements for each are available on our web site: http://architecture.uoregon.edu/people; or you may contact Nancy McNaught, Office Manager, Faculty Search Committee, Department of Architecture, University of Oregon, Eugene, Oregon 97403-1206. Telephone: 541/346-1435; e-mail: mcnaught@uoregon.edu. Review of applications will begin January 16, 2007 and continue until the best candidates are identified.

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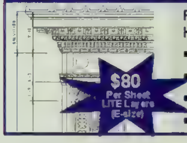

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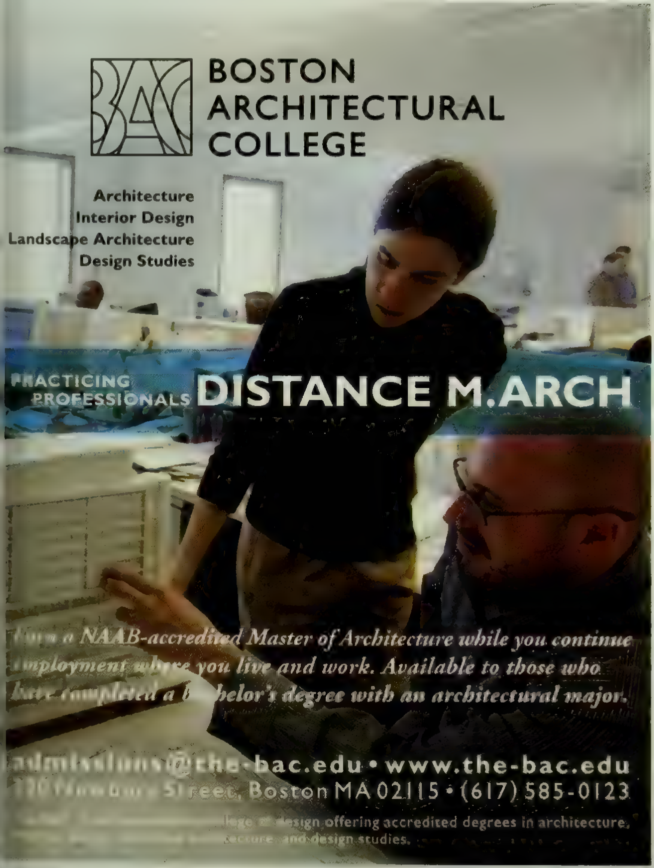
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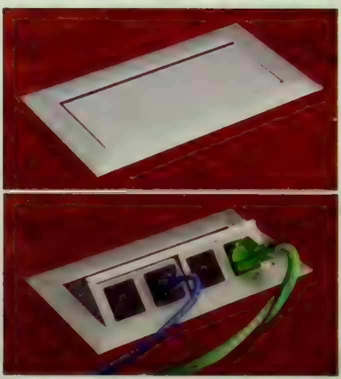

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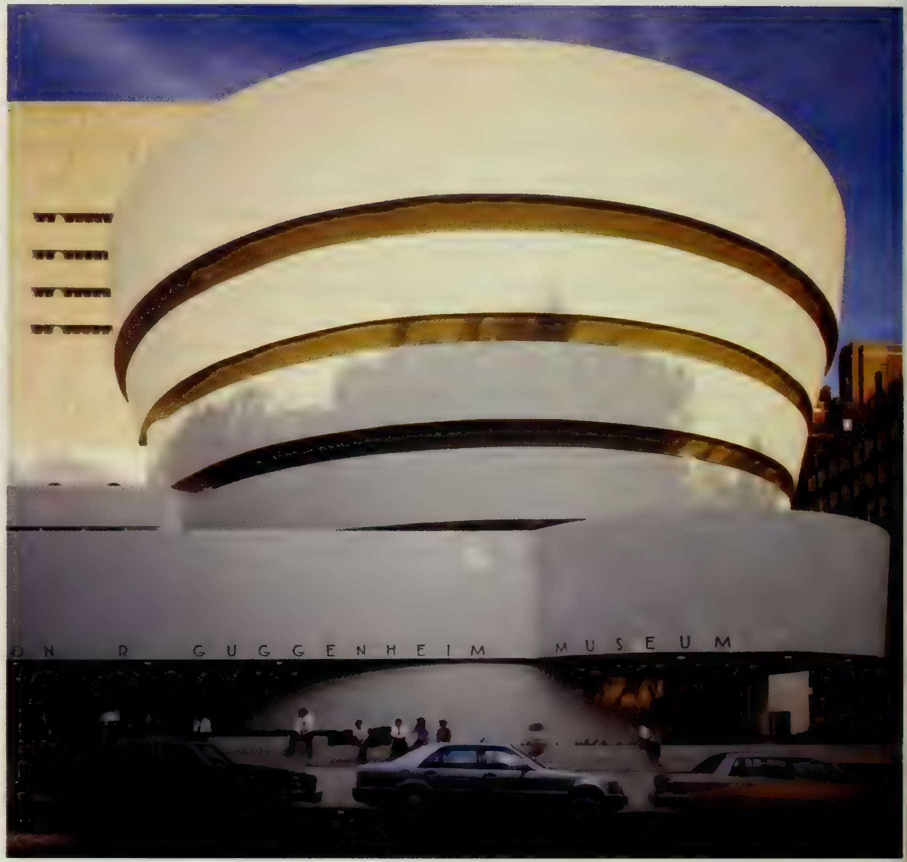

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Currently undergoing an exterior restoration, the Guggenheim's curve relates to the interior ramp that combines circulation with the display of art.

Real Buildings Have Curves

From the ancient Mycenaen Treasury of Atreus in Greece to the Roman Pantheon, and from Borromini's San Carlo alle Quattro Fontane in Rome to Mendelsohn's Einstein Tower near Potsdam, Germany, architecture without corners has left its mark throughout the annals of built history. One noteworthy building shows its curves at the corner of 5th Avenue and 89th Street in New York City. Ever since 1811, when the Commissioner's Plan of New York imposed a grid onto the island, orthogonality has dominated Manhattan. But in 1959, Frank Lloyd Wright challenged this grid with his Solomon R. Guggenheim Museum (shown above prior to restoration).

Its iconic curve relates to the ramp that spirals around the central atrium and combines circulation with the display of art. Contemporary buildings like UN Studio's Mercedes-Benz Museum in Stuttgart are the architectural progeny of Wright's innovative design (see page 126). This new museum, however, benefits from significant advances in technology and engineering unavailable to Wright in 1959. Not surprisingly, the Guggenheim is currently undergoing an exterior restoration (right) to fix surface cracks on its concrete structure, which was made originally by applying layers of a dry-mix, sprayed concrete from within the building. This did not allow for expansion joints, so the wall was subject to cracking. Overseen by preservation architects Wank Adams Slavin Associates, restoration workers have removed 12 layers of paint and continue to perform structural analyses. Following a year and a half of testing, the museum expects to begin work on the actual restoration project by early 2007. *John Gendall*

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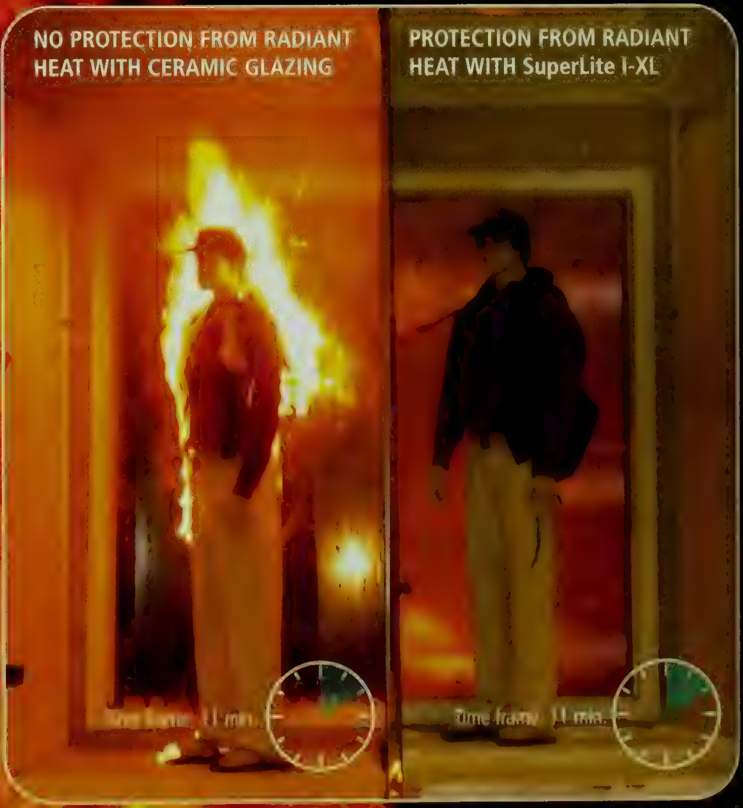
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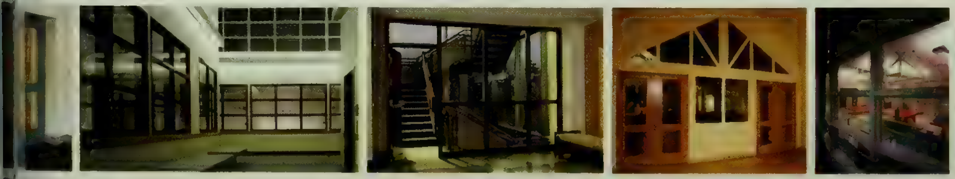

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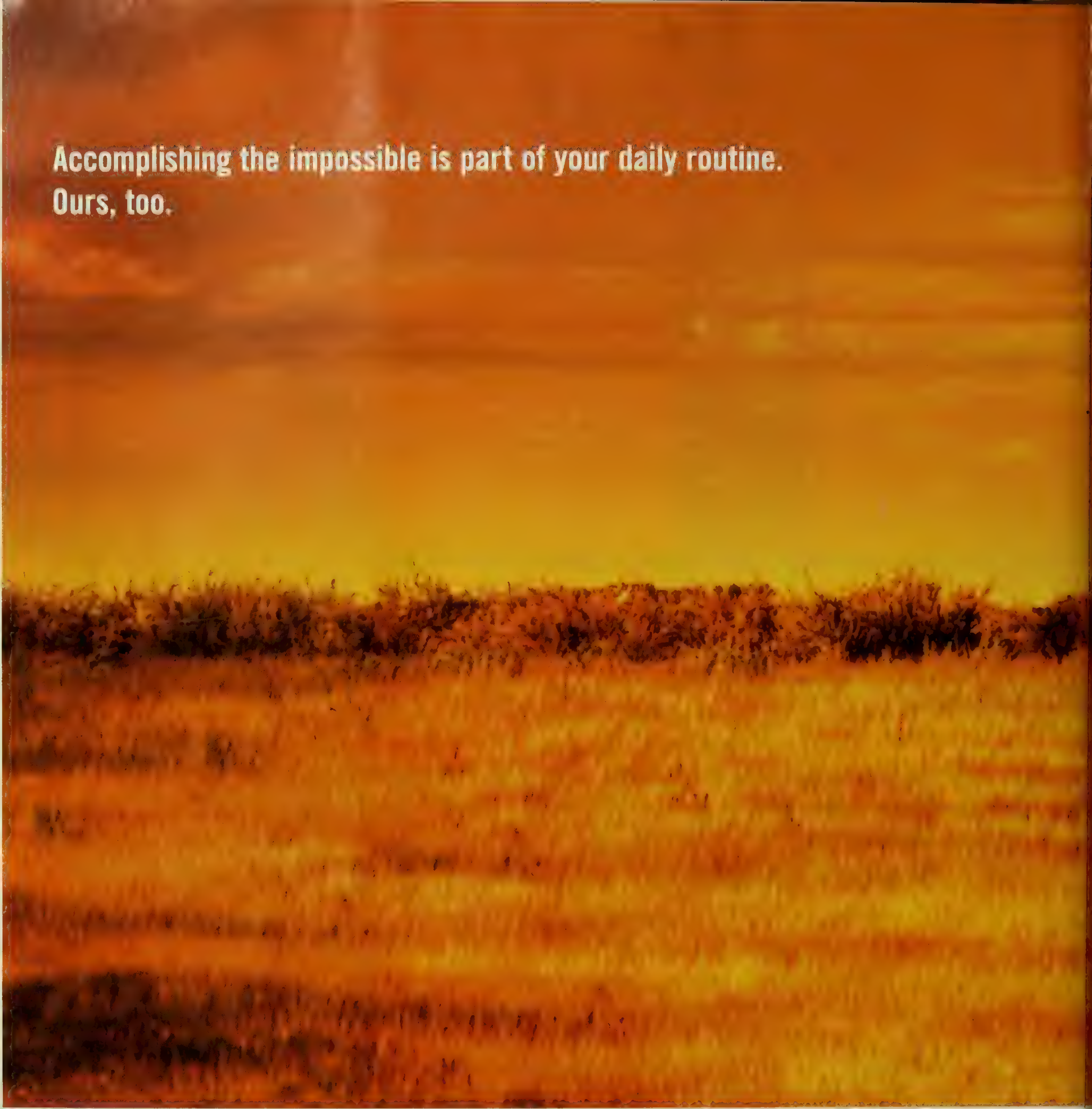

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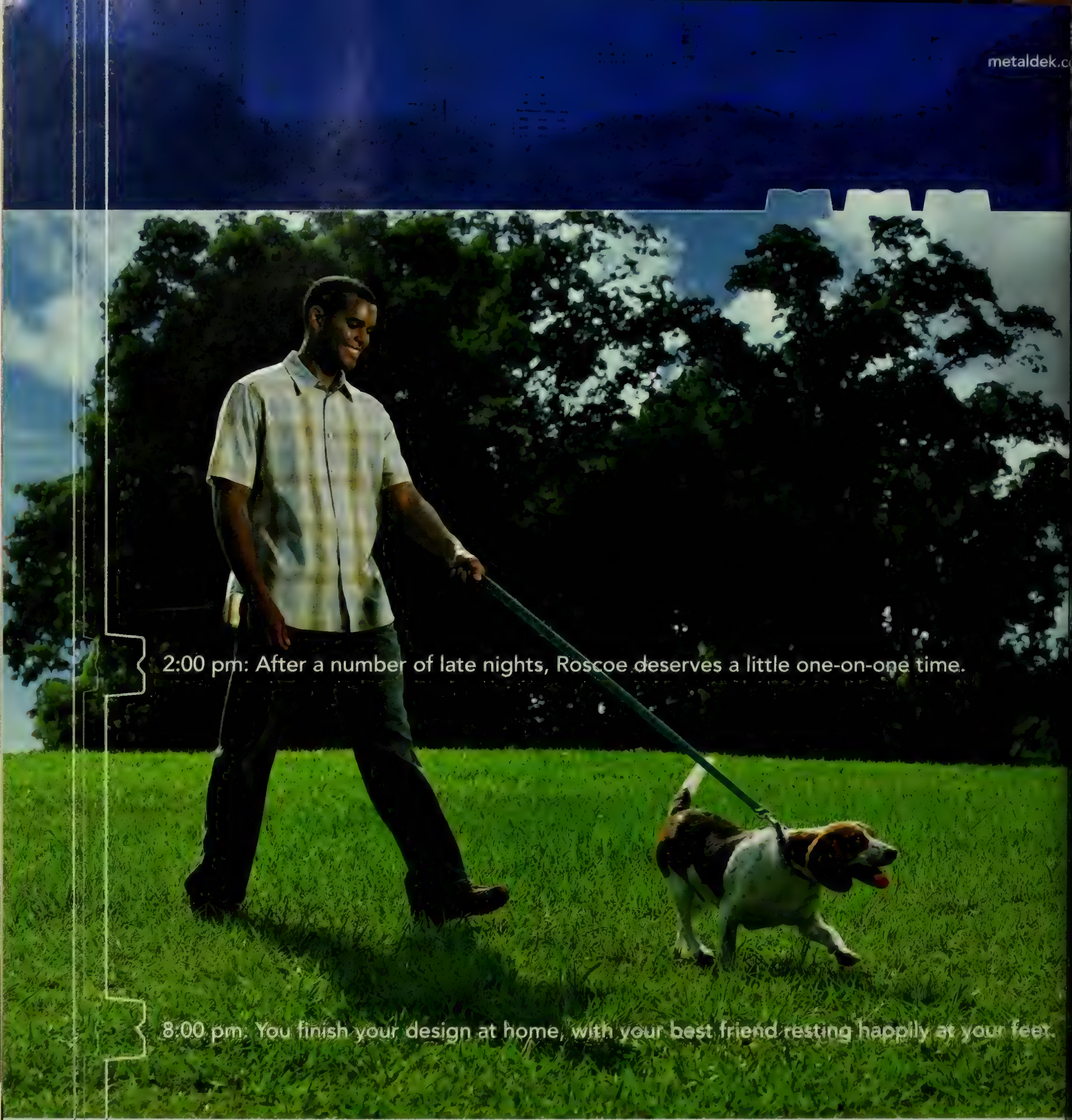

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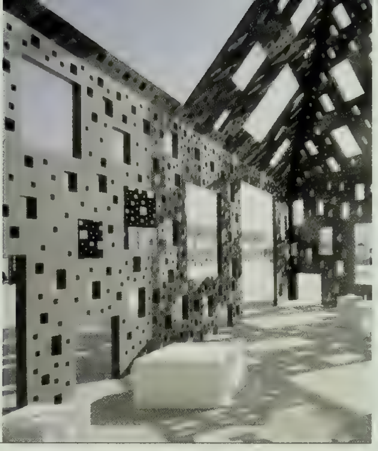

On the Cover: *Diva Lounge, by Studio Luz. Photograph by John Horner.*
Right: *Shin-Yatsushiro Monument, by Kumiko Inui. Photograph by Daichi Ano.*

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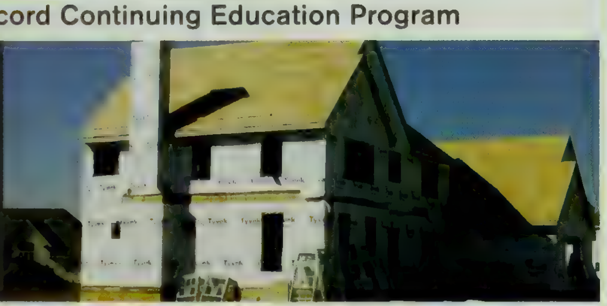

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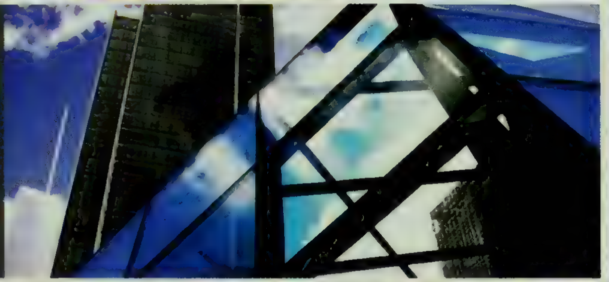

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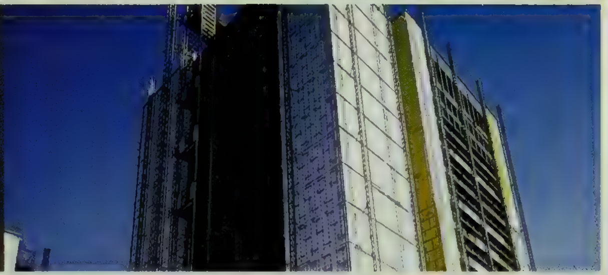

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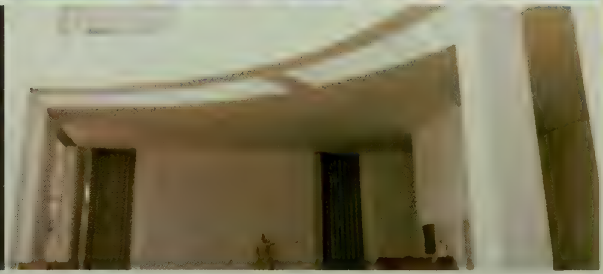

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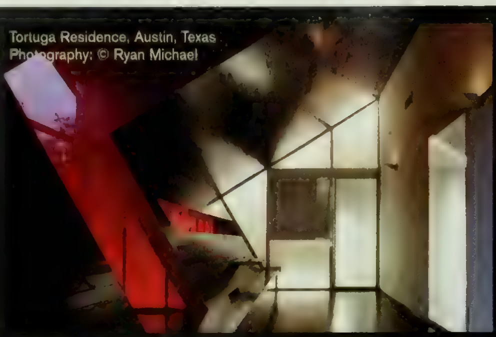
Tortuga Residence, Austin, Texas
Photography: © Ryan Michael

Design Vanguard 2006

While computers have hardly disappeared, the 10 firms profiled in this year's Design Vanguard are using them in less showy ways. Instead of hyperactive curves and German Expressionist angles, the architects shown here are designing buildings that get our attention with graceful proportions, elegant details, and inventive use of materials.

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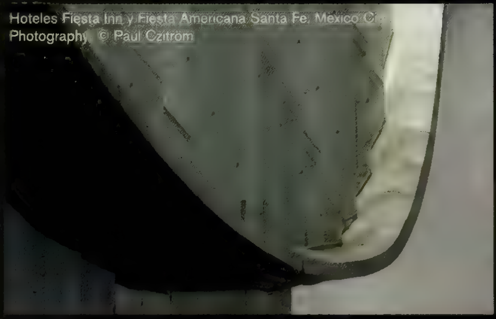
Product Reports

Find out which products made the cut! The 2006 Product Reports rank the year's top contenders by category. Find out the best of the best in the Editor's Picks section.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Building Types Study: Hospitality

Across the globe, in places as varied as the remote reaches of Patagonia and tiny villages in Europe, new hotels are catering more and more to market niches, as these 10 projects show.

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Residential: House of the Month

Anmahian Winton Architects designs a narrow house with simplified, transparent volumes on 35 acres in Austerlitz, New York. Modest materials such as maple wood, stucco, and lots of glass bring texture and openness to this secluded getaway.

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Archrecord2

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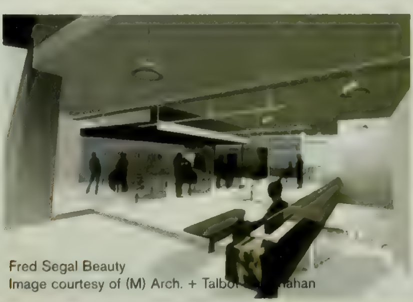
Fred Segal Beauty
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Continuing Education Opportunities

Our editorial continuing education opportunity explores how four Canadian universities plan to build a living laboratory, the Centre for Interactive Research on Sustainability. Go to archrecord.construction.com for more opportunities including sponsored sections.

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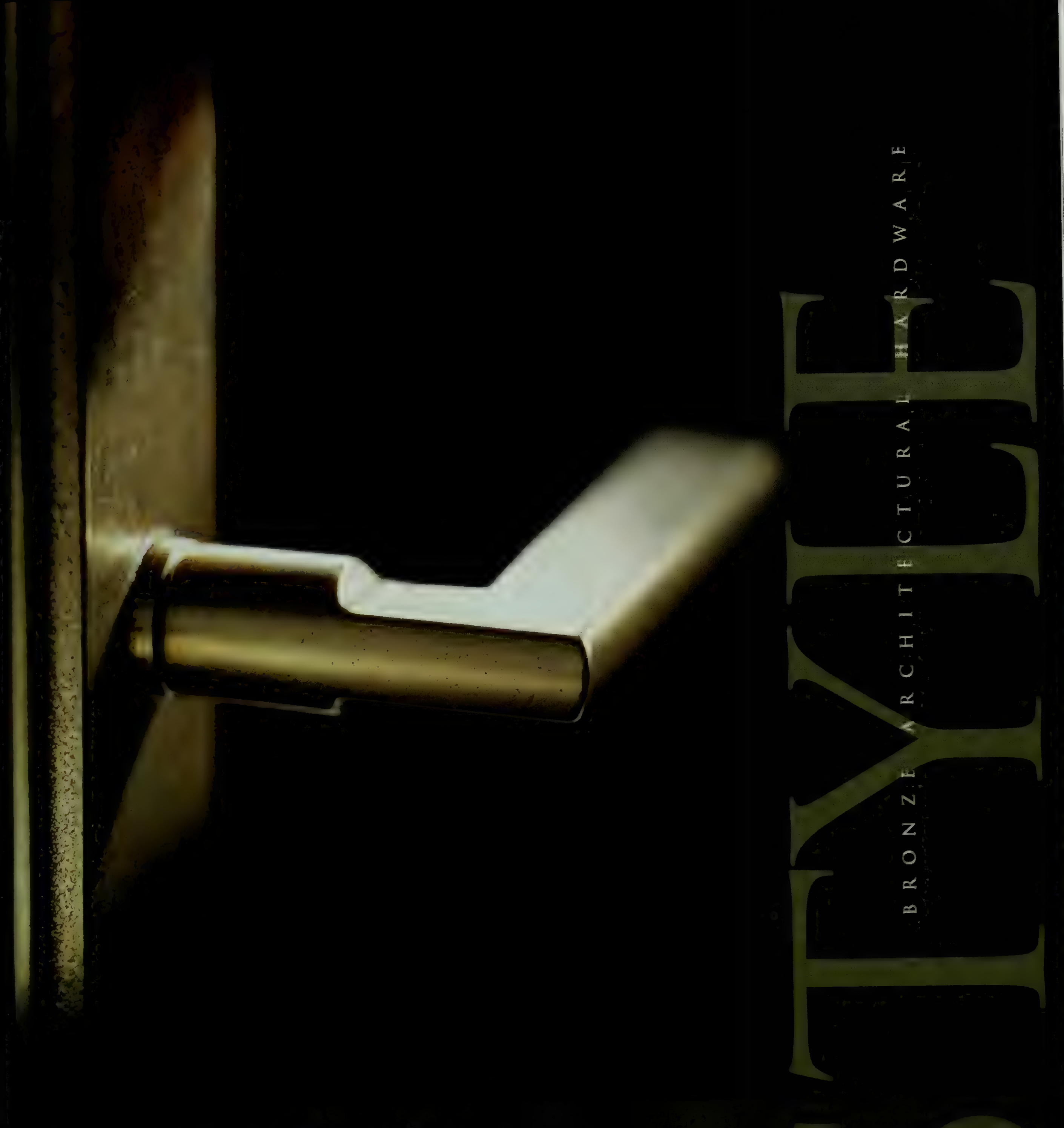

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The Case for Design Excellence

Editorial

By Robert Ivy, FAIA

A note of cautious optimism hovered about the group of design professionals convened by the General Services Administration in San Francisco last month. These newly designated GSA peers would ice the heady task of helping to select—or to challenge, urge, or encourage—heir fellow practitioners through the GSA Design Excellence Program.

They met in the shadow of the program's progenitor, the late Senator aniel Patrick Moynihan, who had earlier penned a simple set of guiding priniples for federal design and construction that included a remarkable assertion: The advice of distinguished architects ought to, as a rule, be sought prior to the ward of important design contracts." As elaborated through the subsequent adership in the General Services Administration—through former commisoners Robert Peck and Joseph Morevic, GSA Chief Architect Ed Feiner, irector of Design Excellence Marilyn Farley, and carried forward by today's ommissioner of Public Buildings Thomas Winstead and Director of Design xcellence and the Arts Thomas Grooms—the Design Excellence Program has terally turned our expectations of mediocrity in federal design on its head.

As a result of the Design Excellence process, we now enjoy an array f distinguished public buildings that represent high ideals, particularly in the nstruction of federal courthouses from Boston to the Pacific Northwest. hanks to a carefully considered evaluative process, the roster of noteworthy rchitects with significant completed federal projects who might never have bmitted a proposal for government work in a more politicized climate now cludes the likes of Richard Meier, Cesar Pelli, KPF, Pei Cobb Freed, erkins+Will, and Leers and Weinzapfel. Thom Mayne, FAIA, and his firm orphosis have completed one major project (NOAA), with two more noteorthy and imaginative commissions soon to open (the GSA office building in an Francisco and the Eugene, Oregon, courthouse).

The nation would be poorer without them, thanks to the program nd to the peers. Unlike most contemporary design and construction programs, hich are based on pragmatic concerns, Design Excellence evolved from priniples that comprise a value system. While acknowledging that pubic rchitecture should be "efficient and economical," Moynihan stated that design e contemporary and regionally appropriate yet "reflect the dignity, enterprise, igor, and stability of the American government." We are not accustomed to ch language today, yet the search for its implications seems to encourage a uest for quality in each project.

The peers must also grapple with issues facing each public building in the 21st century that broaden the original principles. Among them are the following: Iconography—defining who we are in a global world; Security—asking if, in a terrorist-threatened world, we simply move out of town and abandon the urban experiment; Transparency—government of and by the people, strongly advocated by Moynihan and others; Access—for all citizens, young and old, completely barrier free; Context/Siting and Urban Relationship—unique characteristics, from geography to an intended structure's place within a community; Sustainability—determining if a building will serve as a beacon of contemporary energy usage; Historic Preservation, Productivity, and Comfort—for all inhabitants, visitors, and workers.

Although they will not design the future projects themselves, by serving on evaluative juries and ranking submissions, by suggesting participants, by helping to frame the arguments, the peers will help lead the federal government toward informed choices of the best architects for significant projects. Additionally, by meeting with the future occupants and community groups (whether they be judges, managers of federal programs, customs officers, or clerical workers), they can act as knowledgeable ambassadors, expanding public awareness and appreciation for architecture.

Moynihan articulated the role at the outset: "Design must flow from the architectural profession to the government, and not vice versa." Ultimately, the Design Excellence peers, together with the GSA leadership that chooses and supports them, and the professionals that execute the work, will help define the public face of 21st-century American architecture. The program has become invaluable in elevating the role of architects and architecture in public life and deserves our vigilant and continued support.

As promised, McGraw-Hill Construction has launched an interactive forum on sustainability. We welcome your opinions. To gain access, go to forums.construction.com.

Robert Ivy

Letters

Ceci n'est pas un architecte

Bravo for Jack Johnson! And shame on the Colorado Board of Examiners of Architects for making his effort necessary [November 2006, archrecord2, "The word architect: A question of title," page 46]. Thanks to the courts for this one small ray of sanity on the issue of titles. Hopefully this will set a precedent for every other jurisdiction so that interns are no longer required to torture dinner guests with the intricacies of state law when asked what they do. Even more optimistically, maybe the day is coming when we as a profession will admit that the current laws governing the use of the term *architect* exist solely to limit competition and have nothing whatsoever to do with protecting the interests of the public. Wouldn't it be great if the training and experience it takes to become an architect resulted in a commitment to practice so valuable to the public that we didn't have to use the force of law to protect our fee structure?

—Jody Beck
Via e-mail

How many architects have experienced the same dilemma as Jack Johnson of describing their "jobs" in the period when they were pursuing the final stage of training before qualifying for the state licensing exam? It seems that "architectural draftsman" was a common and respectable response, although without the obvious impact of "architect." Mr. Johnson certainly could have done the same and avoided the acrimonious situation that resulted. Architectural degrees do not assign the title *architect*, but rather a Bachelor or Master of Architecture, either of which would also certainly suffice as a background qualifier. It is also true, as RECORD's reporter states, that the work of the intern is "remarkably similar" to that which he would be doing if licensed. This is intended to provide the intern the necessary experience under the supervision of a licensed architect who will attest to the intern's qualification to apply to take the exam. Perhaps the reporter does not understand the process.

It doesn't seem that the licensing statute would prevent any person from using the word *architect* in social conversation governed by his own sense of propriety. However, while the court's decision defines limits as commercial, wouldn't seeking to gain a public office seem to fit those limits better than a social concept?

—Bob Pesce, AIA Emeritus
Benbrook, Tex.

It was refreshing to read a story about when the word *architect* can be used, rather than the usual articles citing restrictions and penalties for use of this important word. As the current chair of the AIA's National Associates Committee, I know that many graduates engaged in the profession are continuously discouraged by those who constantly remind them of the conditions under which the word *architect* cannot be used. In their minds, controlling the use of the word is evidence of the profession's fears, rather than evidence of its strength. As an intern architect (per AIA's current position statement on titling and a term adopted by NCARB in 1969), I am all too familiar with the dance that interns play in social settings with no public health or safety implications, simply because we have been told that *architect* is a forbidden word. There are important state-imposed limitations and restrictions on the commercial use of the word, but there are equally important, constitutionally protected opportunities to use the word. *Architect* is a big word, not a small one. Welcome to the profession.

—Evelyn M. Lee, Assoc. AIA
Costa Mesa, Calif.

While it is true that Jack Johnson may not necessarily or literally "take to the bank" any commercial deposits in calling himself an architect, he clearly relied upon the moniker *architect* to use as an advantage over his political opponent(s). He chose to put himself in a position to influence public policy—to be viewed as an expert for environmental design issues—so he drew upon the title to win such advantage. While not in tangible dollars and cents, there is value to be perceived here. First Amendment, indeed! Our courts continue to rewrite the law.

If Mr. Johnson had a medical degree but was not a licensed physician (and called himself a doctor—not by academic degree) and chose to opine on partial birth abortion as a platform for running for public office, the AMA and the State Board would be all over him, as they should. In matters of law, even with a degree in jurisprudence, if he called himself a lawyer, the Bar Association would have had a bench order thrown at him—also, as they should. Where was the AIA or the NCARB (PACs) on this? Did they file amicus briefs?

Mr. Johnson should take the licensing exam if he wants the title. He is sending the wrong message to interns who are working hard to earn what he has managed to usurp!

—Arthur J. Sikula, AIA
New York City

Editor's note:

To read more on this topic and to contribute your own comments, go to the forum at our Web site, archrecord.construction.com.

ISO unfettered capitalism

In Michael Sorkin's November Critique, "Hollowing out the middle: What's lost when a housing enclave is sold" [page 49], he states: "Clearly, unfettered, laissez-faire capitalism is not capable of providing decent housing for everyone, nor of making the kinds of locational decisions that conduce the cities of diversity and mix extolled by Jane Jacobs." He then goes on to list an impressive number of government interventions in construction and planning: the FHA, tax law, zoning laws, and so forth. In fact, he makes a convincing argument that the suburbs of America aren't a natural product of economic freedom at all; they are a product of government intervention. All of this begs the question: Where is this unfettered laissez-faire capitalism Sorkin is talking about? We came closest to it in the 19th century—which is when many of the traditional neighborhoods embraced by Jane Jacobs were built.

—Benjamin Mohr
Blacksburg, Va.

The Renaissance man

Just a note to commend Alexander Gorlin on his superb piece describing Leon Krier's Architecture Center at the University of Miami [October 2006, page 110]. I wish all architectural writing reached this level of clarity and knowledge about the subject at hand. He has always been an exceptionally talented designer, but now he has been propelled into being a true Renaissance man!

—Harold Roth, FAIA
New Haven, Conn.

Corrections

A November news item on Katrina Cottages being sold by the hardware superstore Lowe's [page 30] misspelled the name of siding manufacturer HardiePlank.

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Record News

Highlights

p.24 **Beirut architecture survives conflict**
p.26 **Glass House and Griffith reopenings**
p.30 **B&B Italia introduces contract goods**
p.34 **Sexy exoskeletons on the boards**

U.S. is taking tentative first steps to participate in the 2010 Expo

o prepare for the 2010 World Expo n Shanghai, the Chinese government has been sparing no expense o lay the groundwork for celebraion. Activities such as relocating actories and steel mills from the Huangpu River fairgrounds will cost at least $3 billion. But with Congress refusing to provide funds or a pavilion, whether or not the J.S. would participate has been an open question.

Now the State Department has taken a tentative first step oward ensuring a U.S. presence with a request for proposals, issued November 8. But the RFP offers ttle hope for architects without leep pockets. Respondents will be expected to handle design, construction, management, and eventual disassembly of the pavilion with no support from Washington. The estimated cost? From $75 million to $100 million, which "will be treated as a gift to the U.S. government," according to the RFP. "That's a lot of money, and I hope we do get bids," says James Ogul, a grants officer at the State Department's Bureau of Educational and Cultural Affairs. The State Department, Ogul adds, "has told the Chinese government that our participation is conditional on raising private funds."

At last year's fair, in Aichi, Japan, the $34 million cost of the U.S. pavilion was borne by corporate donors, who were rewarded with a lavish VIP suite. Nearly every other country uses public funds for pavilions, says Alfred Heller, author of *World's Fairs and the End of Progress* (1999). And the U.S. used to do the same. But in 1992, at a Seville, Spain, fair commemorating the 500th anniversary of Columbus's voyage, the U.S. erected a tent taken out of storage after Congress declined to pay for a pavilion designed by Barton Myers, FAIA. Then in 1994, Congress banned the use of federal funds for world expositions. One result: In 2000, the U.S. was absent from the Hannover, Germany, fair, the theme of which was "A New World Arising."

At least one organization, Annapolis, Maryland–based The International Historical Watercraft Society (IHWS) is already pushing a plan for Shanghai 2010. It wants to build a replica of the *Sea Witch*, a 180-foot-long clipper ship that loaded tea in the Huangpu River 150 years ago. Unlike a land-based pavilion that would have to be demolished, the IHWS could sail the ship to other ports.

Responses to the State Department's RFP are due February 9, 2007. In related news, Milan, Italy, and Izmir, Turkey, are bidding to host the next major world expo, in 2015. No other cities submitted bids before the November 3 deadline set by the Bureau of International Expositions, the Paris-based organization that sanctions world's fairs. *Fred A. Bernstein*

Richard Rogers names firm's next-generation leaders

ust days after winning the RIBA Stirling Prize for the Madrid Barajas Airport, 73-year-old architect Richard Rogers announced that wo of his firm's senior directors were selected to head Richard Rogers Partnership (RRP). "I have nvited Graham Stirk and Ivan Harbour to join me, adding them to he name of the practice," Rogers said in an October 16 statement. I will remain as active chairman."

Graham Stirk (left) and Ivan Harbour (right) will be Richard Rogers's successors.

In the past, only Rogers needed o sign off on plans. Once the firm's board approves Rogers's decision, Stirk and Harbour will be responsible or all RRP projects; as Stirk says, they will have to "take a view on all projects." Harbour calls the change "an evolution rather than a succession."

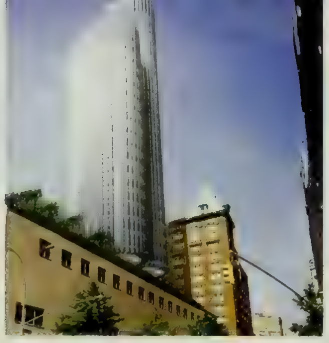
A director since 1993, the Scottish-born Harbour joined the firm in 1985 and has led the design on projects such as Barajas and the National Assembly for Wales. Born in the English city of Leeds, Stirk joined RRP two years before Harbour, becoming one of the firm's 10 directors in 1988. He is currently leading the design of London's 48-story Leadenhall Street office tower.

The firm's principles, which Harbour calls the "glue" that holds the practice together, will be largely unaffected by the change. "What interests Graham and me is that they're not stylistic values," says Harbour, "they are more about ideology." The pair will continue to promote flexibility—Barajas can expand modularly as passenger numbers grow, for example—and to design buildings with both generous public spaces and sustainability concerns in mind. There are still no plans to build power stations or prisons.

As for the new practice name, the directors have "played with names several times," Stirk says, but did not disclose their final choice as of press time. Once Rogers retires, his name can be used for two years thereafter. The RRP constitution states that it must then be dropped.

Rogers is not planning to retire in the near future; in the past, he has said that he wishes to work into his eighties. "Architecture is part of life," Harbour says. "For Richard and for us, you live and breathe it. The idea of retiring from it is beyond comprehension." *Robert Such*

New York's toniest residents clash over Norman Foster design



A proposed residential tower by Foster and Partners for New York's Upper East Side has sparked conflict between neighbors, pitting preservationists against the local artists, designers, and gallery owners who hope to see the building constructed.

The Foster design would see a 30-story pair of intersecting, elliptical glass towers built on top of the existing 1950 Parke-Bernet Gallery building at 980 Madison Avenue, opposite the famed Carlyle Hotel. It would also restore the Parke-Bernet building to its original four-story design by Walker & Poor, which would involve removing a fifth story that was added in the 1960s, converting two floors to gallery space, and adding a public roof garden below the towers.

During a presentation at an October 24 New York City Landmarks Preservation Commission hearing, Foster argued that such ambitious architecture isn't out of place in the neighborhood, and pointed to the Carlyle, the Guggenheim Museum, and the Whitney Museum as examples. "The nature of the Upper East Side, interestingly, is that constant of change and renewal," he said. "It's a kind of a tradition of radicalism."

Tradition or not, many residents aren't keen on the development, saying the scale and style of the building isn't appropriate for the neighborhood. At the recent hearing, Teri Slater, cochair of Defenders of the Historic Upper East Side, called the building an "oversized, ovoid, glazed conceit of a project." She added developer Aby Rosen was merely trying to distract preservationists by hiring an internationally famous architect to come up with the design. Ward Blum, another resident of the area, said, "Approving this design proposal would be like the philharmonic inviting a heavy-metal punk rocker to join the orchestra," concluding, "Our district should not be a petri dish for design experiments."

But the list of those supporting the project is just as long, and includes many high-profile names. Richard Meier, FAIA, has offered public testimony before the Landmarks Preservation Commission in support of the project, while artist Jeff Koons framed the debate as one of "segregation, discrimination," saying that opponents are sending the message, "If you like Modernism, don't live in the Upper East Side."

The project is presently under consideration by the commission, and a decision is expected early next year. *Tim McKeough*

In Beirut, the show pauses, then goes on

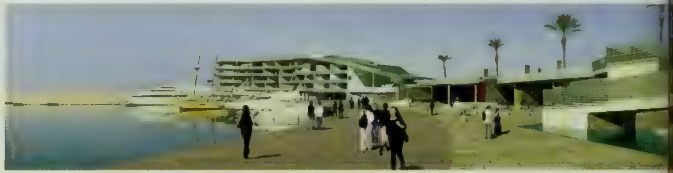
"Beirut: a thousand times destroyed, a thousand times reborn" is a saying popular enough to have once graced the posters of Lebanon's national airline. Except for the bombing of Beirut airport and important infrastructural arteries, however, forthcoming architecture projects in the capital city have emerged unscathed from the recent tension between Lebanon and Israel.

Prior to the Lebanon-Israel conflict, Beirut's most comprehensive rebirth was begun under a reconstruction campaign spearheaded by the country's late prime minister, al-Hariri, through Solidere, The Lebanese Company for Development and Reconstruction of the Beirut City Center. Established in 1994 following a 15-year-long civil war, Solidere commissioned leading architects to give a new face to the city.

The plethora of Solidere-sponsored projects includes the city's new marina, designed by Steven Holl Architects and L.E.FT and for which excavation just began; completion is expected by 2009. The project is of major significance for a nation of seafaring merchants. It is conceived as an urban beach of public spaces; its centerpiece building, which will include apartments, a yacht club, shops, and restaurants, comprises staggered volumes to recall the lapping of waves.

The London-based landscape-design firm Gustafson-Porter is also playing a large role in the Solidere operation with Shoreside Walk, a redesign for a stretch of former shoreline, and the Garden of Forgiveness, a green space emphasizing the common ties of people seeking reconciliation after civil strife. Neil Porter, a director at Gustafson-Porter, speaks with passion about working in the city: "While it may be an environment where money is not so easily found, awareness of essential principles such as design integrity and ecological sustainability make working in Beirut a challenging and rewarding experience." The Garden may take on new meaning as cross-border tolerance is debated; the recent spate of violence has delayed realization, perhaps to 2009.

Jean Nouvel, acclaimed in the region for his Arab World Institute (IMA) building in Paris, designed a cutting-edge, multipurpose development currently being built downtown. The $200 million complex, due to be completed in 2008, will feature a 40-story, campanilelike tower soaring above the city center. The limestone-colored tower will be sheathed in perforated aluminum shutters, recalling the latticework of the traditional Arab house, which also inspired the IMA entrance facade.



Excavation has just begun on Beirut's new marina, by Steven Holl and L.E.FT.

Not all design-luminary-linked projects have been commissioned by investors like Solidere. Vincent James Associates Architects (VJAA) has designed a soon-to-be completed student center for the American University in Beirut, a century-old institution that is also the patron of a building by Zaha Hadid that will open in 2008. "It's an opportunity to deal with critical environmental and energy-saving-related issues, while catering to the needs of a really dynamic society and reflecting the lifestyles generated by the Mediterranean climate," VJAA principal Jennifer Yoos says of the project. The VJAA design features carefully articulated masses interspersed with open courtyards to capture hillside breezes, and it provides students with a mix of common spaces, including the rooftop terraces that define the local quality of life.

Many of the heavyweight architect-planners working in Beirut, such as Boston-based Hashim Sarkis, who has completed a variety of projects in the city, and L.E.FT founders Makram el-Kadi, Ziad Jamaleddine, and Naji Moujaes, have ancestral ties to Lebanon. And although their designs have weathered the recent storm, like the rest of their resilient compatriots they're holding their breath for fear of renewed political instability—while engaging in that quintessentially Lebanese tradition of awakening the phoenix. *Seif El Rashidi*

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The Glass House to open to public this spring

Two years after Philip Johnson's death, his Glass House will open to the public for the first time this spring. The New Canaan, Connecticut, estate, run by the National Trust for Historic Preservation, promises to serve as a living landmark while it houses a progressive cultural institution.

Occupying over 47 acres and totaling a dozen structures including galleries, sculptures, follies, and the Glass House itself, the estate stands as a timeline of sorts for Johnson's life and influences. "In its day, the Glass House was a nexus for architects, artists, and writers," explains Christy MacLear, the site's executive director. "We want to recreate that through the opening."

To realize that goal, the Glass House will sponsor high-profile programs and publications, as well as residential fellowships beginning in 2008. MacLear particularly hopes the residency can revive the cooperative atmosphere the estate fostered in years past, when cultural heavyweights such as Andy Warhol, Fran Lebowitz, and Vincent Scully were frequent guests. Works on the site were inspired by the camaraderie and input of Johnson's contemporaries—such as his Ghost House, a faux edifice built entirely from chain-link fence in 1985, which stands as a tribute to his friend Frank Gehry. In that spirit, fellowship participants will range from artists to industrial designers, and will work for six to eight months on individual projects.

Before fans and fellows can visit, major repairs of the Glass House must be completed on areas such as the roof and brick foundation, which fell into disrepair during Johnson's final years. Eight of the structures will be open to the public, with the first tours starting in April to select donors. The estate will be open annually from April through October.

Starting in April, once repairs are done on the Glass House and other areas, much of Philip Johnson's New Canaan estate will open to the public.

This is the second Modern masterpiece to enter the trust's portfolio, after the Farnsworth House, allowing for more of the general public to appreciate the work of the era. The imprimatur of the popular National Trust also secures midcentury architecture's place as history deserving to be saved. "It's exciting," MacLear says. "We get to introduce the importance of preservation to a whole new audience." *Dan Rubinstein*

Beloved L.A. landmark reopens

Talk about Hollywood facelifts. The flamboyant, John C. Austin–designed Griffith Observatory reopened on November 3. The beloved Angeleno, which has appeared in the films *Rebel Without a Cause*, *The Terminator*, and *Charlie's Angels: Full Throttle*, is finally ready for its closeup after a four-year, $93 million overhaul.

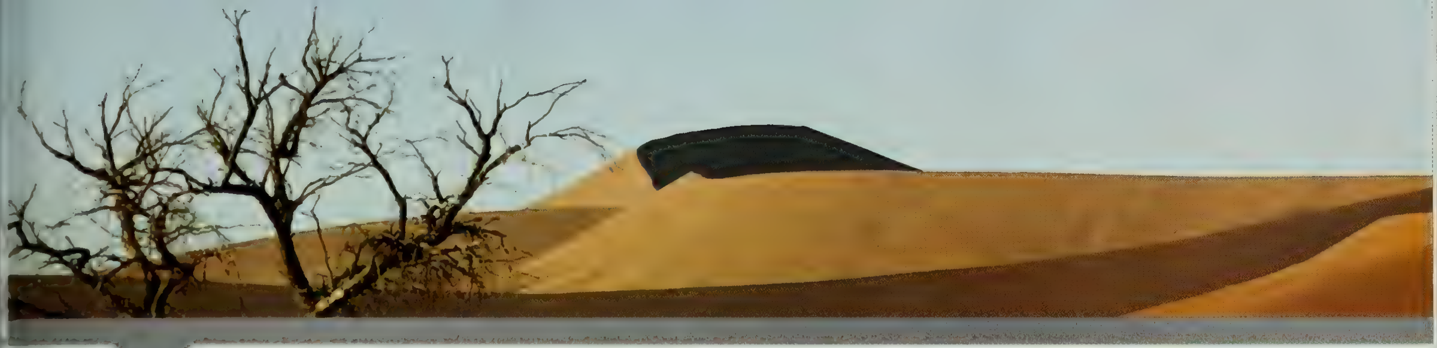
Local executive architects Pfeiffer Partners and associate architects Levin & Associates, and New York–based exhibition designers C&G Partners, restored the building's facade and existing facilities, upgraded technical infrastructure, and added 40,000 square feet of new exhibition, learning, and public space. Stephen Johnson, FAIA, a Pfeiffer partner, says the goal was not to disturb the observatory's legendary white concrete facade and four copper domes, so the firms built most additions under the north-facing front lawn of the existing building, lifting much of the museum on hydraulic jacks to accommodate excavations.

New facilities include a multilevel exhibition gallery and a 200-seat cylindrical presentation theater; the existing planetarium has been completely updated with an acoustical dome and new projectors, sound, and lighting. On the western edge of the hilltop site, a new "transit corridor" terrace is clad with bronze-colored aluminum and glass and contains a new café as well as large instruments that allow visitors to track the movements of Earth in relation to the Sun.

On the building's main level, its Art Deco architecture is maintained, while underground visitors get the feeling of being in space. Rubber-floor patterns emulate gases in the cosmos, and planetarium-seat fabrics are printed with phases of the moon. C&G Partners' exhibits include the *Big Picture*, the largest astronomical picture ever created, a scale model of the solar system, a heliostat, and a giant moon rock displayed in a large glass case.

Levin & Associates headed the restoration of the existing building, a massive task that included removing and replacing lead-based paint, filling cracks and holes in the building's surface, repairing and waterproofing copper domes, replacing the planetarium's dome, cleaning interior murals and sculptures, and restoring the walls, ceilings, and travertine marble and rubber-tile floors. The firm also opened alcoves, windows, and large rooms that had been filled in over time.

The renovation was paid for by a partnership between the City of Los Angeles, the Department of Recreation and Parks, and the nonprofit Friends Of The Observatory. *Sam Lubell*



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1/8"	1/2"	0.30	0.24	0.28	0.22	40	19	19	12	11	33	0.27	0.23	58	55
5/32"	1/2"	0.29	0.24	0.28	0.22	40	19	17	12	11	31	0.27	0.23	58	55
3/16"	1/2"	0.29	0.24	0.28	0.22	39	18	16	13	11	29	0.27	0.24	58	56
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An Amazonian capital rediscovers the Amazon

Manaus is Brazil's great Amazonian metropolis, a 1.5-million-person industrial city isolated in the middle of the rain forest, readily accessible only by airplane or riverboat. Rapid development over recent decades has nearly erased the presence of the rain forest itself; within the city, it's hard to find a single tree. Now, with a $200 million infrastructural makeover, local authorities are attempting to recover some of Manaus's natural past.

The targeted areas are the stagnant, sewage-strewn *igarapés*, waterways that lace through the century-old port facilities, shopping centers, and densely packed residential neighborhoods of Manaus and feed directly into the Rio Negro. Thousands of hand-built wood and brick *barracos* have encrusted the swampy areas, sharing space with small alligators, legions of rats, and piles of waste. Whole elevated shantytowns, housing some 7,500 families, perch precariously on stilts and link to solid land by a network of planks. During the months-long flooding season, polluted water inundates the shacks.

Financed largely by the Inter-American Development Bank, the local government is relocating the *igarapés*' inhabitants to new housing developments on the city outskirts and demolishing the water-bound villages. The waterways are to be fitted with drainage and sewage treatment systems, filtered for pollutants, and then reshaped into landscaped parks or seeded with native tree species. Some of the streams will be culverted and some will become canals. Those in charge of the project say it will have a wide-ranging impact on sanitation, social welfare, and the environment.

Whatever the project's promised benefits, *igarapé* dwellers feel ambivalent. Terezinha Souza, is a 62-year-old hairdresser who has lived along the *igarapés* for 40 years. When she first moved there, people simply lived on floating shacks. "It's a tradition of the people to live here," she says. The principal option for those forced to leave is a 580-square-foot government tract home located far from downtown.

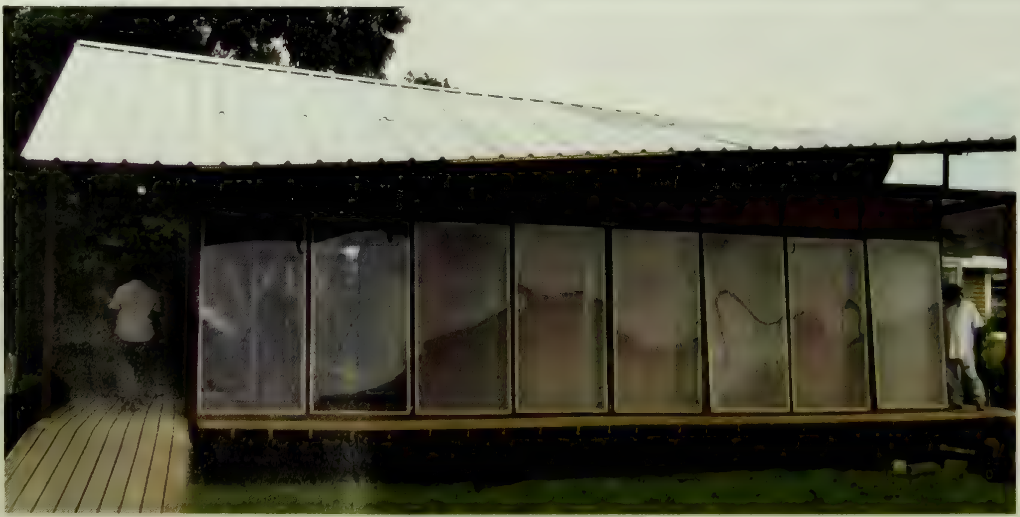
Work on the *igarapés* began last year. As of late August, about 3,700 families had relocated, according to the local housing agency. The project is expected to take approximately 12 years. *David S. Morton*

Students fashion new home for Lower Ninth Ward landmark

During the spring and summer of 2006, Project Locus, a nonprofit corporation dedicated to addressing underserved communities, rounded up architecture students from the University of Montana, Kansas State, Tulane, and a host of other schools to rebuild a New Orleans gem that had been lost to Hurricane Katrina. Housed in the detached garage of Ronald Lewis's home in the Lower Ninth Ward, the House of Dance and Feathers contained his extensive collection of relics of New Orleans' black culture.

Second Line Parade and Mardi Gras Indians' costumes, Social Aid and Pleasure Clubs photographic histories, and other artifacts were central to New Orleans's historically disenfranchised black community. Until the mid-1950s, for example, African-Americans were prohibited from participating in the official "main line" Mardi Gras celebrations. In response, they created their own Second Line Parades, where community members donned intricate beaded costumes incorporating African and Native American aesthetics and danced down the street. Lewis's museum amasses needlework from the festivals and holds classes in the craft.

The house was only 65 percent intact after the hurricane; Lewis was able to spirit away most of his collection before Katrina made landfall, although the storm destroyed everything left behind. He was on-site during the 2006 spring break when students cleared debris from the site and researched the Lower Ninth, and again this summer when they came back to rebuild. Project Locus executive director Patrick Rhodes led the $40,000 rebuilding project. Many members of his 35-student construction team, representing schools from throughout the country traveled to the site at their own expense—and for no college credit.



Reopened this fall, the 384-square-foot building features a rectangular footprint rotated on th original foundation; for additional space, a deck wraps the museum and travels across the yard. It is also marked by two separate roof structures: The primary, corrugated metal roof hovers on metal struts over a secondary, corrugated-plasti roof, serving as an umbrella and as a chimney for radiant heat. The interior is also a dedicated multitasker, because displays are actually hinged exterior panels that open and close for natural ventilation. Lewis now looks upon his reborn neighborhood beacon through a new sliding glass door, one new feature of the $50,000 home renovation also donated by Project Locus and the students. *Leigh Batnick*

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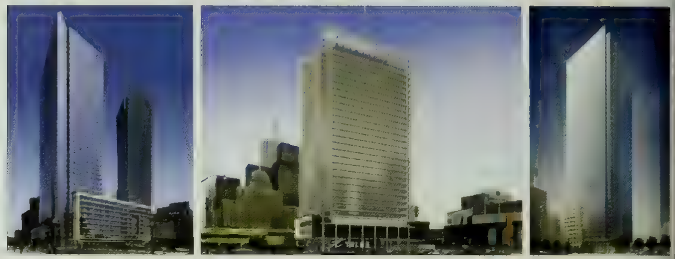
A conservative outlook for Toronto offices

Much has changed about Toronto since Paul Goldberger, as architecture critic for *The New York Times*, noted in a 1992 column that the city “hasn't been much of a place for architecture.”

Since then, an uncharacteristically adventurous agenda initiated C$1 billion of cultural facilities, including a Frank Gehry remake of the Art Gallery of Ontario and a Daniel Libeskind addition to the Royal Ontario Museum, which are under way. Yet Toronto will not quite retreat to its more subdued status quo next year when work begins on 3.1 million square feet in three office towers. Tall, sleek, and sedate, they are the first to be built in the downtown core since the early 1990s, when a recession froze office construction.

Brookfield Properties Corporation is resurrecting Bay-Adelaide Centre, a 1.1-million-square-foot, 50-story office tower with adjacent hotel and condo whose clock stopped 13 years ago; local architects WZMH designed the first scheme for Trizec Hahn, the original developer, and its subsequent incarnations. The 30-story, 780,000-square-foot tower 25 York, a joint venture of Menkes Developments, Hospitals of Ontario Pension Plan, and Halcyon Partners Fund, is designed by Adamson Associates in association with Sweeney Sterling Finlayson & Company. And the Cadillac Fairview Corporation will build the 43-story, 1.2-million-square-foot RBC Centre while also co-developing an adjacent 53-story Ritz-Carlton Hotel and Residences; Kohn Pederson Fox Architects designed both buildings. All three projects will be completed by 2009.

Bruce Kuwabara, a founding partner of Toronto's Kuwabara Payne McKenna Blumberg Architects and one of Canada's most prominent architects, says the three towers do not challenge the city's architectural fabric because “after a long drought in office buildings, neither Toronto developers nor the market can make a big statement about design.”



Office towers are rising again in Toronto, with (from left to right) RBC Centre, 25 York, and Bay-Adelaide Centre, all due for completion in 2009.

The city's entrenched conservatism is compounded by memory of the early 1990s, when downtown Toronto's office vacancy rate shot past 20 percent. While the developers landed the anchor tenants they needed to warrant new construction, they are by no means heading into an unstoppable market that would fill the rest of the space.

In September, a CB Richard Ellis Limited report noted that growth in the office sector had stopped nationwide, except for Calgary. Toronto's vacancy rates during the second quarter rose from 8.7 to 9 percent, and CB Richard Ellis expects that rate to increase to 10.2 percent when the three towers are completed.

Even though neither the current crop of office buildings nor market forces promise to give Toronto office developments an architectural jolt, the three forthcoming projects do set a higher urban-design standard among the mainly undistinguished structures on the city's skyline.

James Parakh, an architect and senior urban designer in the City of Toronto's planning department, is enthusiastic about their contributions to the public realm, which include new plazas and extensions to the downtown's underground PATH shopping complex. Kuwabara concurs, adding that the three towers will rebalance the mix of uses in the wake of a condo boom downtown: “It's the vibrant mixed-use downtown that Toronto should be about, connected to the commuter line, with an urban design that emphasizes pedestrian connections.” *Albert Warson*

B&B Italia enters contract furniture market

Ay, there's the rub—45,000 Martindale rubs, to be exact. The Modern home furniture manufacturer B&B Italia is subjecting itself to higher durability standards with a first foray into the contract market. Its nine-piece Project Collection was previewed at the Milan and NeoCon furniture fairs, and was officially launched at the October trade show Orgatec, in Cologne, Germany.

While the boom in nonresidential construction has encouraged B&B's branching out, Project Collection manager Paul Statham also attributes the move to interior-design trends: “We've seen a general increase in the amount of home furniture being specified for the contract market,” he says, also noting that “the office landscape has changed: The amount of space being dedicated to collaboration, meeting, lounge, and other front-of-house areas has doubled, and we reckon it's going to be 50 percent of a building. Usually that means you're looking at soft seating, tables, and chairs, and B&B is strong in those areas.”

The company has reengineered some domestic favorites for the collection, such as the Uwe Fischer–designed Sina chair. It also features innovative new products. A new co-molding technique made it possible to realize Antonio Citterio and Toan Nguyen's Ottochairs: Two different plastics are injected and fused in the same mold to give the chair a firm seat and a softer, more flexible splat. Hollow, an armchair and two-seat sofa by design superstar Patricia Urquiola, also features a unique combination of materials. Its arms and backrest comprise concave plastic panels lined in upholstery or leather. The pairing tops delicate varnished or chromed legs. All products' dimensions and finishes coordinate so that architects and designers can “mix and match within and across families,” Statham says.

Although Statham won't decide on a North American distribution plan until next year, specifiers in the States can order Project Collection items through B&B's two New York stores now. *David Sokol*

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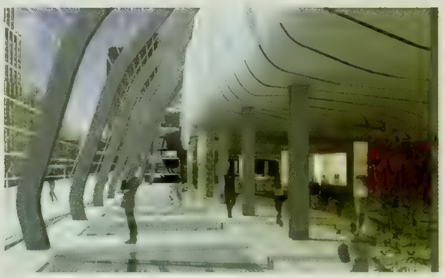
Hyatt Regency expansion by Gensler

During the Chicago winter, the notoriously bone-cutting wind chill often renders the riverfront desolate. A Gensler-designed expansion to the Hyatt Regency, which will give the hotel a presence on the Chicago River, might make this part of the city's landscape hospitable year-round.

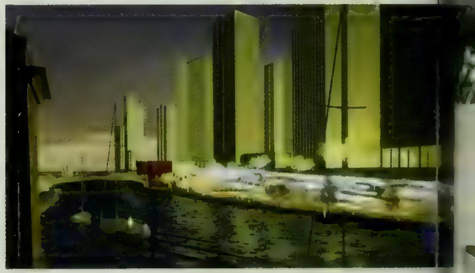


Expansion will take place under the roadway (below) and a glassy front will appear at the river.

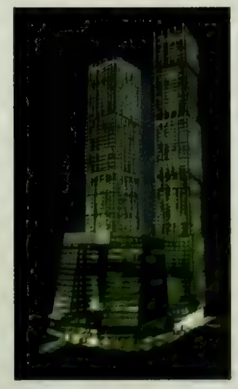
Still in the early stages of planning, the 150,000-square-foot addition, housing a hotel exhibition hall, retail space, and concert venues, would occupy a closed stretch of roadway beneath Lower Wacker Drive, emerging at the riverfront as a triple-glazed, faceted-glass curtain wall. Besides making a new architectural statement, the project should reinvigorate the abandoned thoroughfare and invite Michigan Avenue pedestrians to access the riverfront.

In addition to the energy savings afforded by triple glazing, the wall's integrated turbines will harvest the Windy City's namesake renewable energy to generate electricity for the hotel, and a geothermal system will heat and cool the building. The slightly curved form of the wall will help capture rainwater, and act as a light scoop to bring natural daylight beneath the multilevel Wacker Drive structure.

Soon after Gensler was hired by Hyatt to plan the expansion, city officials tapped the firm to remake the riverfront, spanning from the hotel to Lake Michigan's Navy Pier. Tentative plans call for a multiuse promenade and space for a farmers' market. The exhibition hall will be finished by summer 2009, although the broadened scope of work will likely postpone completion of other aspects of the Hyatt project. When it is finished, the architects will seek LEED Platinum certification. *Violet Law*



City of Capitals by NBBJ

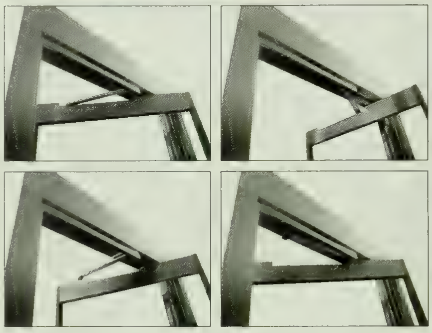


While five- and six-story buildings predominate in Moscow, the city's few high-rises mark different eras of its history. The eclectic Seven Sisters towers were built during the last years of Stalin's rule. Now, the immense City of Capitals, a 3.7 million-square-foot building designed by NBBJ, is helping to write the latest chapter of the city's tale. NBBJ partner in charge Friedl Bohm says the complex will be Moscow's first mixed-use skyscraper when it is completed in late 2008.

City of Capitals encompasses three of 12 building sites in Moscow City, a giant redevelopment zone first conceived by the local government more than a decade ago. Located about one and a half miles from the Kremlin, the district is "a town in itself," Bohm says, and a destination for freshly minted wealthy Russians to call home.

Within City of Capitals, apartments are located in the 62-story or 74-story poured-in-place concrete towers that contain several units per floor. (In Russia, residential units are sold raw, so expect the place to be overrun with individual homeowners' contractors for a while.) These towers are subdivided into slightly rotated volumes, suggesting Russian Constructivist artwork. "Moscow City is looking for icon buildings," Bohm says of the historical interpretation, and he notes that "the core is so stiff that we can cantilever those twisting pieces very easily."

The towers share a podium, which is designated for office space, and the third South Building is devoted to offices and retail. All aspects of this new luxe life will be on display in the central atrium, a major circulation feature for all occupants. *D.S.*



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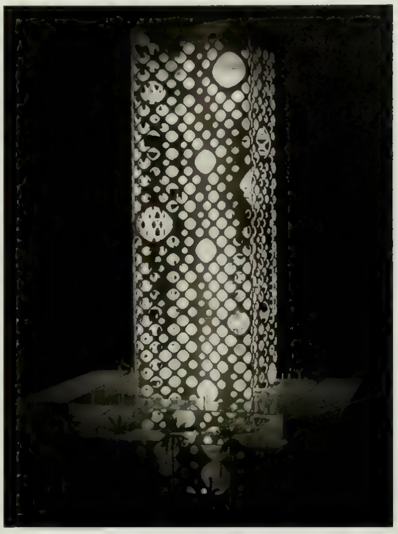
O-14 by Reiser + Umemoto



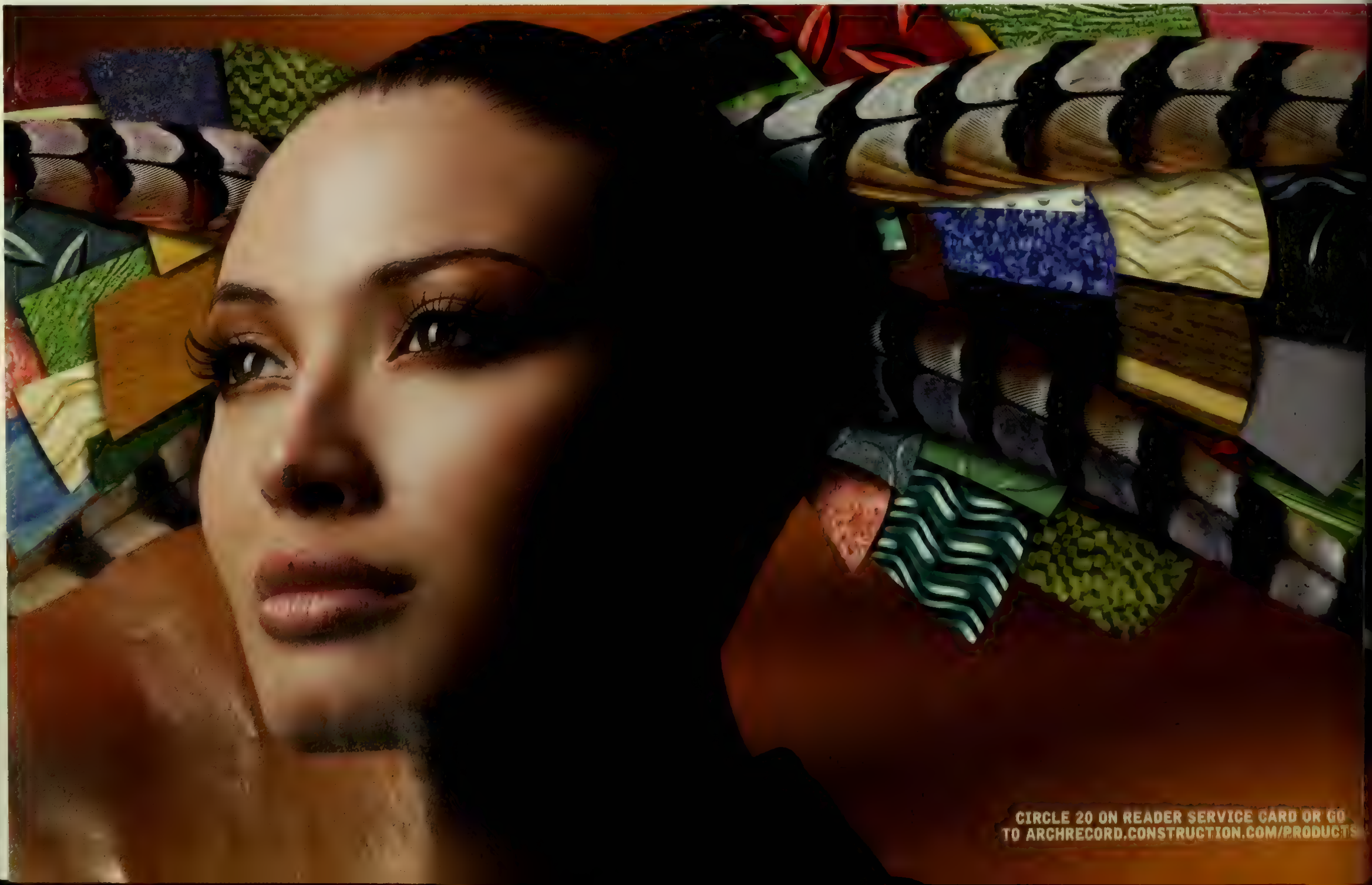
Zaha Hadid's Dancing Towers may have won the international design competition for an iconic structure in Dubai, the first held by Dubai Properties, but participating in the contest didn't come to naught for Reiser + Umemoto RUR Architecture. Developer Shahab Lutfi had organized the event on behalf of Dubai Properties, and well before Hadid was even anointed the victor, RUR had gone into preschematic design on a commission from Creek Side Development Company, where Lutfi is a partner. The 300,000-square-foot O-14 office building breaks ground this month.

Situated on the artificially expanded Dubai Creek in the city's Business Bay district (where Dancing Towers also will rise), O-14's 22-story tower features two intriguing shells. A rounded cruciform-plan volume sits within a parallel 1.3-feet-thick, steel-reinforced concrete wrapper. Floor plates connect the two forms via "tabs," eliminating the need for interior columns.

That outer shell is perforated with more than 1,000 rounded-diagonal openings. RUR principal Jesse Reiser, AIA, says the structure is a diagrid, "but we didn't want it to be so obvious, so we manipulated the solids and voids to create an almost painterly effect." The voids come in five sizes, measuring from 4 to 25 feet on one side.

Besides freeing the habitable core from wind, lateral, and earthquake forces, and establishing a unique aesthetic, the dotted outer skin exercises several passive solar techniques. It shields the core from brutal Middle Eastern sunlight, with the assortment of holes, though seemingly random, neatly corresponding with views and sun exposure for building occupants. Further, where tabs aren't present, the 3-foot-long distance between internal and exterior shells creates a chimney for ventilating hot air before it can penetrate the core. The architects expect that, as a result, they can reduce air-conditioning load by 25 percent.

A cunning design, confident developer, almost-full tenant roster, and a breakneck design and construction timetable—was any aspect of this project second-guessed? That would be the name. Try as they might for an alternative, "O-14 is the plot number, it's what we finally came to," Reiser says. Presumably, SpongeBob references didn't hit the target. *D.S.*



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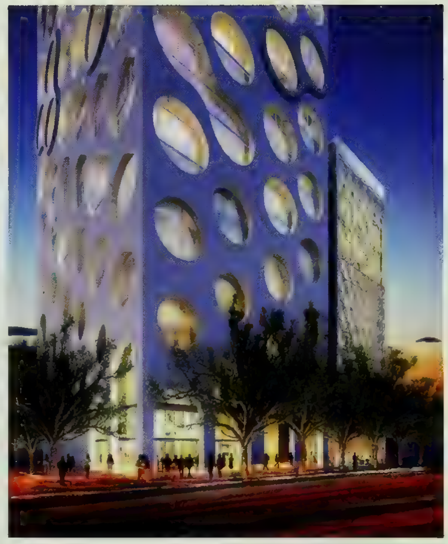
OR by Oppenheim Architecture + Design

'hile at first glance, its sexy, Rat
ack surface seems more stylish
ian practical, Chad Oppenheim,
A, says the giant polka-dotted
iell of the mixed-use COR building
Miami, Florida, follows function.
ultiple functions, actually.

The 400-foot-tall structure is
uck on a tough site: cramped for
ace, oddly shaped, just steps
om a highway, and yet zoned to
quire ample parking. "Our chal-
nge is how to fit the parking, not
stroy the street experience, and
nerate an architecture that
oaks the experience," Oppenheim
plains. Deploying a diagonally
aced outer shell to carry lateral
ads allowed the architecture and
gineering team to eliminate
iear walls and other structural
ements inside, thereby making
om for parking within the building. And, with cars located roughly between levels two to 10, office and condominium occupants in the floors above are comfortably removed from the highway—and given better views of the downtown and Biscayne Bay.

"It's not really a whimsical, 'Here's great, cool-looking architecture,' " Oppenheim says of COR's logo-ready appearance. "It's more about how do we solve this problem, and we solve it by creating an exoskeleton." He also says the choice of circles was inspired by endemic MiMo architecture.

The exoskeleton solves other, equally urgent problems, such as neighborhood and environmental stewardship. At ground level, for instance, the concrete shell peels away from the internal volume, creating an arcade to shelter pedestrians from the subtropical heat. It also provides thermal insulation and shading for that volume. In combination with Energy Star Appliances, LED lighting, and other measures, Oppenheim estimates 40 percent energy savings for the building. Also, as the shell extends beyond the penthouse level, it becomes an armature for wind turbines, the energy from which will light common areas such as hallways and the lobby. Solar hot-water panels, ringing the circular openings like glittering cuffs, will heat the condo swimming pool. Although ground breaking won't take place for another eight months, Oppenheim says he is aiming for a LEED Platinum rating. *D.S.*



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archrecord2

In this month's archrecord2, it's all about the brand. For today's young firms, working with branding means more than littering our architectural landscape with logos and billboards. It means innovative architecture that reflects the values of a company—and brings the public into those spaces. Two firms show how it's done properly, one in Los Angeles and one in New York. Tune in online to Design, Work, Live, and Talk, where forums now let you speak your mind.

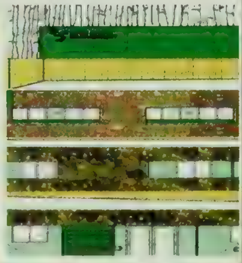
Design

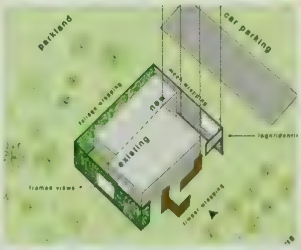
M(Arch): Brands and the built environment

Two architects and a strategic-marketing professional walk into a building. This time, however, it's no joke. Architect Todd Erlandson, AIA, and marketing guru Sherry Hoffman (center and right in photo, left), principals of Los Angeles–based architecture and branding firm (M)Arch, and (M)Arch project architect Laura Hoad (far left in photo), have structured their firm into what could be a significant niche in the business of architecture. While some architects might scoff at a firm that puts its own star power aside to focus solely on a company or community's identity, these three are happy to concentrate on creating a holistic brand experience for clients that includes good design as part of the strategy, and keeps their egos out of the picture. "Becoming stars is the antithesis of who we are," says Erlandson, who has worked for Richard Meier & Partners and Skidmore, Owings & Merrill, and teaches a course about branding and architecture with Hoffman at the Art Center College of Design in Pasadena, California. "We are focused on creating significant work, not signature work."

To these three, creating significant work means defining a company's values, and maximizing those values into a built environment, whether it be for a corporate headquarters, a preschool, a city, or a dental office. "Our goal is to translate the values of a company or community into architecture," says Hoffman, whose experience includes marketing positions at Young & Rubicam and Universal Studios. "Companies want to communicate their identity, and their physical environment can do that for them."

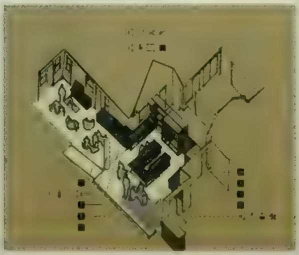
The 5-to-8 person firm, which began in 1998, has worked for such varied California clients as HBOFilms, hip Los Angeles department store Fred Segal, and the City of Santa Monica. The (M)Arch team believes that buildings are important vehicles for





Clover Park, Santa Monica, Calif., 2002
Landscape and cladding communicate the city's identity and aesthetically blend new and existing office trailers into a lush public park.

The Children's Center at Caltech



The Children's Center at CalTech, Pasadena, Calif., 2007
A 600-square-foot arts and sciences lab for university preschool that reflects CalTech's culture.

IMAGES: COURTESY (M)ARCH

Fred Segal Beauty, Santa Monica, Calif., 2007
Six-thousand-square-foot salon, spa, and retail space for L.A. beauty trendsetter.

communicating a message. "We offer a creative business strategy for our clients that encourages them to define who they are," says Erlandson. "The strategy applies to different areas of design, including logos, business cards, Web sites, and more, so we'll collaborate with graphic professionals to create the other material for a client. And context is everything. We pay attention to how this brand fits into the community in a meaningful way. We want to create something that will make a difference, expose the process, and give people a connection to a hot place."

And connecting with the public means designing structures that are more than boxes covered in logos and signage. "Brands are creating the landscapes of our cities," says Erlandson. "If we, as architects, don't step up and get into it, what will happen to our built environment?" *Ingrid Spencer*

For more information on these and other projects by (M)Arch, visit archrecord.construction.com/archrecord2/.

Klingmann Architecture Brand Development

Anna Klingmann, principal of Klingmann Architecture Brand Development, has just finished a book about architecture and branding called ***Brandscapes: Architecture in the Experience Economy*** (MIT Press, 2007). The architect and educator, who transplanted herself to New York City from Germany many years ago, is raring to bring her expertise to the American marketplace. Having formally started her company in 2004, her clients have been exclusively European—German-based Robinson Resorts; the City of Halle, Germany; and competitions for clients such as Adidas and the City of Prague. "I'm excited to work where I live," says Klingmann, "and I see the potential here, as real estate developers and corporations in recent years are realizing that good design can enhance the value of their brands."

While Klingmann's firm consists of about 3-to-4 people at any one time, she relies on collaborations with a network of professionals around the globe to accomplish the total package that a branding effort requires for a client. "We do the architecture and the master planning," she says. "We try to see the brand in a conceptual way. Not as a product, but as a catalyst—a strategic tool. We bring logic to the table, and magic."

Klingmann emphasizes that it's the values of the company that need to be shared with the public through architecture, and while that means that the building can help employees "live the brand," it also means that the public should be brought into the culture. "Corporations often close themselves off from the public with their architecture," she says. "That's an opportunity lost. If clients have public spaces that create a physical experience for people, then architecture can serve a powerful role in communicating. By fencing themselves off, they create a feeling of distrust."

As an educator, Klingmann knows that brandism is still not quite accepted as a viable way to go about the business of architecture. "Academia is so concerned with 'shape making' that it often ignores the relevance of content," she says. "Architecture is more than just creating a cool object. It can make economic impact, improve a depressed area, and communicate a long-term strategy. We visit certain places because they are unique, so as the world becomes smaller, it's important that architects keep it from becoming homogenized." *I.S.*

Oasis Resort, Agadir, Morocco, 2008
This project for Robinson Resorts contains a center envisioned as a lively souk, with residential communities designed as quiet villages nestled in a vast, sensual, and colorful landscape.

Audi Flyer, various cities, unbuilt
Flexible boutique spaces in urban areas would encourage exposure to the Audi brand.

Kunsthalle Rebranding Study, Halle, Germany, 2004
To rebrand a derelict district of the city, Klingmann proposed turning it into a living urban sculpture park where a culturally attractive environment would create new economic opportunities.

For more photos and projects by Klingmann Architecture Brand Development, go to archrecord.construction.com/archrecord2/.

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Battling for better architecture: The argument for activist criticism

Critique

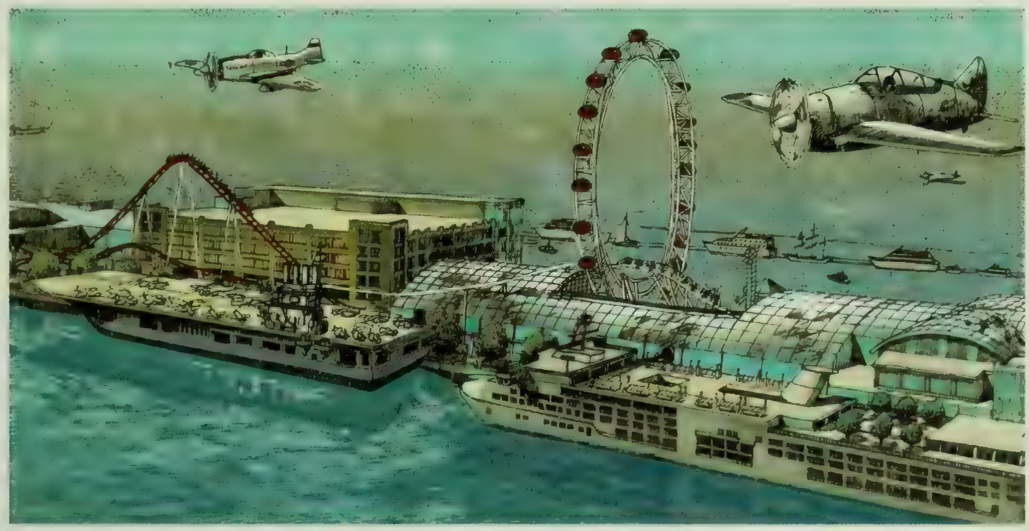
By Blair Kamin

Here's one explanation for all the whining you've heard in recent months about the devolution of architecture criticism: Not enough critics today write like Allan Temko, the late, Pulitzer Prize–winning architecture critic of the *San Francisco Chronicle*.

All too often, today's critics play the role of the jet-setting formalist. They happily chase starchitects around the globe, but take a pass on going after hideous buildngs in their own backyard. Some even characterize Temko's activist approach as nostalgic and outdated when, in reality, it's more relevant than ever. In the process, they're turning the serious business of evaluating the inescapable art into an aesthetic parlor game. This may fascinate the chattering classes. But it seems ever more disconnected from the lives of everyday people as well as the important but all-too-often ignored work of the profession's rank and file.

How do I know this? I've read a transcript of a critics panel, held ast May in New York, that brought together four distinguished critics: Robert Campbell of *The Boston Globe*, Paul Goldberger of *The New Yorker*, John King of the *San Francisco Chronicle*, and Nicolai Ouroussoff of *The New York Times*. The panel was meant to honor Temko. Instead, it consigned his work to a dim, supposedly remote past—the equivalent of love beads and Flower Power.

Contributing editor Blair Kamin is the Pulitzer Prize–winning architecture critic of the Chicago Tribune.



In the fighting spirit of the late critic Allan Temko (left), Blair Kamin attacked a design by Forrec Ltd. for Chicago's Navy Pier (above) before it could become a reality.

Because I was unable to attend the panel, my own thoughts about criticism, based in many ways on Temko's, got more twisted than one of those new torquing skyscrapers. So RECORD editor Bob Ivy, the panel's moderator, has generously given me a chance to respond. Thanks, Bob. With a new generation of architecture critics coming to the fore at American newspapers, it's essential for both architectural journalism and architectural culture to put Temko's contribution in proper context.

Temko was a hell-raising humanist who had a piercing eye and a wicked wit. Along with the renowned Ada Louise Huxtable at *The New York Times*, he was one of the pioneers of modern architecture criticism. His take on the field was firmly rooted in the dawning environmental consciousness of the early 1960s.

In 1962, the same year that Rachel Carson's *Silent Spring* alerted Americans to the environmental and human dangers caused by the indiscriminate use of pesticides, Temko became the *Chronicle's* architecture critic. He quickly began railing against ill-considered plans—and raising his readers' sights.

As Temko wrote in *No Way to Build a Ballpark and Other Irreverent Essays on Architecture*, a collection of his columns published in 1993, "Suddenly the country was being ruined before our eyes, smashed, raped, poisoned, stunk up and, not least, disfigured by inhumane and even hideous buildings … A new environmental politics was needed, and with it a new journalism, not [Lewis] Mumford's rarefied jeremiads in *The New Yorker*, but war-in-the-trenches attacks on ugliness."

In the early days, Temko fought his battles in a rambunctious, crusading newspaper that was in no way constrained by the ethical guidelines that bind today's journalists. He would write a slash-and-burn critique, slamming a design for a clunky, out-of-date span across San Francisco Bay as a "Rip Van Winkle bridge." Then he would pen an unsigned editorial praising the brilliant judgment of the architecture critic.

This sort of preemptive strike—not waiting for mistakes to happen, but going after them before it was too late—had an enormous impact. It

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sulted not simply in better bridges, ut in better architecture, better his- ric preservation, better waterfront nd coastal protection. The list could on and on, as Temko himself, in fits immodesty, sometimes let it. Once, ter he gave himself one too many ats on the back during a lecture the Illinois Institute of Technology, watched in astonishment as Franz chulze, Mies's biographer, simply ot up and walked out.

But Schulze, an old newspaper uy himself, still loved Temko. And r good reason. While Temko could ay the salon game, having written e definitive book on Notre-Dame Paris, he was first and foremost street fighter. He knew that a aily newspaper was a weapon that ould be wielded in an entirely fferent way than a monthly chitectural magazine. A daily ewspaper isn't supposed to prac- e criticism by omission, ignoring what it doesn't like. It's supposed to take on everything and connect with everyone.

And so, Temko cast his critical net beyond glamour buildings and ventured to jails, halfway houses, hospitals and other health-care facilities, such as a former San Francisco convent that was transformed into an AIDS hospice. Consider this sharply observed but remarkably sensitive 1989 piece about the hospice: "The mutual regard between the patients and staff is tactfully enhanced by the design. Little was done to the building, but the interior was reorganized and refurbished almost inch-by-inch to provide maximum comfort … [I]n what had been a sacristy, a soundproofed room with heavily padded walls allows for the release of grief."

This was one of the pieces that, in 1990, won Temko journalism's highest honor, the Pulitzer Prize. His deep engagement with his city and his region undoubtedly explains why Temko's legacy was widely celebrated in the San Francisco Bay Area after he died in January at age 81. Ironically, however, the celebration did not extend to the very event meant to honor Temko.

At the panel, when Ivy asked whether critics should take a proactive (rather than a merely reactive) role, Campbell opined that the distinction is a false one. Even in a reactive story, he argued, you can make a proactive case. Which is true if you're solely interested in upgrading the level of dialogue over the long-term, but meaningless if you intend to change short-term outcomes—and stop stupid proposals.

If I had waited until after the fact earlier this year, Chicago might now be proceeding with a ridiculous plan to convert Navy Pier, the city's 3,000-foot-long waterfront attraction, into a giant theme park, complete with a Coney Island roller coaster. Yet shortly after the plan was unveiled, I wrote that it would inject the already-tacky pier with "lethal doses of future schlock." Now the powers that be are consulting Helmut Jahn and other top Chicago architects to see if they can come up with something better.

My colleagues are kidding themselves if they think that just because Robert Moses isn't out there tearing up neighborhoods to build highways, other destructive forces haven't replaced him. We may have entered the age of mass good design, thanks to Starbucks and several decades of informed architecture criticism, but there are still decision-makers out there who just don't get it. Exhibit A: Ground Zero. And look at the way the government is surrounding federal buildings with security bollards that project paranoia and suck the vitality out of cities. Besides, they're ugly.

Whoops! I used the word ugly. "Ugly is the wrong word," Campbell said at the panel, with a quick second from Goldberger. Then Ouroussoff chimed in about the need to fight for certain ugly buildings, like Frank Gehry's, to exist. Duly noted (and Temko's own too-

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rigid rationalism prevented him from appreciating Gehry's spectacular talent). But for every Frank Gehry head-turner that's ahead of its time, there are hundreds of shoddily built, poorly designed condo towers or apartment buildings trashing the urban fabric. And they're irredeemable blights.

When critics play the global game, they run the risk of missing the unglamorous but significant local design issue that hits readers where they live. I have tremendous admiration for the incisive and elegant writing that Ouroussoff and Christopher Hawthorne of *The Los Angeles Times* bring to national and international stories. Yet I wish they would write more often about the cities on their papers' nameplates.

Clueless cosmopolitanism is as dangerous as ignorant insularity. I'm talking about the critic who covers the world but treats his own backyard (or, at least, the non-starchitect buildings in it) as a flyover zone. That's a sure way to guarantee that you'll lose touch with readers. As Temko showed, confronting bad plans head-on—and doing it on your home turf, week after week, year after year—is the ultimate test of a critic's mettle.

So is the other side of the activist coin: The enterprise story or multipart series that focuses public attention on an essential civic issue, such as waterfront development or public housing, and points out best practices to local officials or architects. Those are the kind of impact-generating stories that aren't handed to you by publicists.

Needless to say, you do all this while writing on deadline and trying to articulate a position in today's "anything goes" world of design pluralism. My own approach is to argue for a set of underlying values—quality, utility, continuity, authenticity, and sustainability all come to mind—rather than a particular aesthetic. I judge the architecture, not the architect. And I ask to be judged not by one piece, but by how well I communicate those values over time—and to what extent they shape public debate and influence its outcome.

Temko retired in 1993, just as the Internet age was gaining steam. He didn't offer any models for the age of the World Wide Web, but I suspect that he'd be intrigued to see what's happening in Chicago today: The development of a small but highly competitive group of newspaper critics, broadcasters, and bloggers.

They are Kevin Nance at the *Chicago Sun-Times* (who splits his time between art and architecture criticism); Lynn Becker at the *Chicago Reader* and his *ArchitectureChicago Plus* Web site (www.arcchicago.blogspot.com); Edward Lifson at WBEZ Public Radio; Edward Keegan at *Crain's Chicago Business*; and myself. Why are there so many of us? Perhaps because Chicago is the first city of American architecture. But the real reason, I think, is fear of embarrassment: Architecture is a big story in this town and no one wants to get beat. So we compete ferociously, which keeps everybody on his toes.

Who wins? The readers—and the architects they hire. When it comes to criticism, more is more. More voices mean a higher collective visual IQ. And that invariably means more enlightened clients and better designs. Maybe there's a lesson here for other cities: Foundations and architecture groups should do everything they can to plant the seeds of dialogue in a variety of media outlets—not simply newspapers, but the Web, TV, and radio.

Globalism and the Web can be a positive force for criticism so long as you don't fall into globalism's trap: Going everywhere and writing with true insight and impact about nothing. In contrast, the journalistic debate in Chicago is spirited, fractious, and, most of all, engaging to the public. ■

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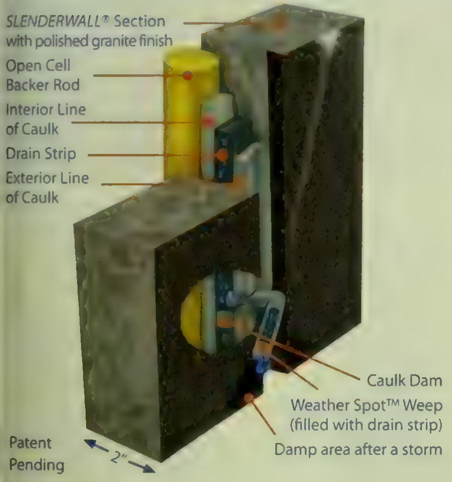

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Spanish tradition through the eyes of Teresa Sapey, an interior designer for whom tile has always been a design staple.

100% Cerámica is the theme of the media room in Casa Decor Miami '06. An exclusive Tile of Spain promotional area, the 680 sq. ft. space in the transformed historic Miami Women's Club is a celebration of ceramic tile creativity in interior design by Tile of Spain collaborator, Teresa Sapey.

Sapey, who has a doctorate in Architecture and Fine Arts, combines both disciplines with interior design to perfection, a mix that has created a hugely successful career and has placed her name at the cutting edge of design. Ceramic tiles are one of her constants and by using them she demonstrates that the material has been adopted by the new trends. Her CV features awards such as the National Competition prizes won for her refurbishments of the Tandem and McCann Erikson offices in Madrid. She has also designed the Custo shops in Barcelona, Madrid, Paris and Milan and the company's franchises in Las Vegas, Beverly Hills, Dallas and Salamanca.

In Tile of Spain's media room, Sapey takes traditional Spanish icons to an explosively dramatic level, as she demonstrates ceramic tile's adaptability to new trends. Polka dots, Sevillana dance and Flamenco are interpreted and executed as spatial elements in signature Sapey style creating visual impact that's nothing short of breathtaking. Tradition turned 100% modern – in 100% Cerámica – fuels this avant-garde presentation of ceramic tiles from Spain as art.

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Long ignored, Eero Saarinen makes a grand comeback

Exhibitions

By Clifford A. Pearson

ero Saarinen: Shaping the uture. *Curated by Donald lbrecht. At Kunsthalle Helsinki, ctober 7–December 6, 2006. avels to Oslo, Brussels, Detroit, /ashington, D.C., Minneapolis, St. ouis, New York, and New Haven.*

i death, as in comedy, timing is verything. When it comes to ollywood stars and politicians, an arly death can preserve a romantic nage from the corrosive effects of ging and the inevitable missteps of ving through changing times. But for rchitects, passing away prematurely usually disastrous, since most areers really get going only after a umber of years in practice. When ero Saarinen died in 1961 at the ge of 51, though, he was arguably ie most important architect in the nited States, having designed iconic iildings for some of the most power- l corporations and clients in the nd—General Motors, IBM, CBS, ell Laboratories, the Department of tate, and Yale University, to name st a few. And he was lucky enough have associates in his firm, particu- rly Kevin Roche and John Dinkeloo, ho could see his late works—includ- g the TWA Terminal at JFK Airport, ie Gateway Arch in St. Louis, and ulles International Airport—through completion after his death.

So you might think Saarinen ould have benefited from ie James Dean cut-down-at-the- eak-of-his-career halo effect. ut Saarinen had the misfortune of ying right as critical opinion of his ork was turning increasingly nega- ve. In 1962, when Reyner Banham

At the dawn of the jet age, Saarinen designed the TWA Terminal at JFK (then, Idlewild) Airport, creating an icon that helped define a romantic image of air travel (above). Although best known for his corporate and public commissions, he also designed classic Modern houses, such as one for J. Irwin Miller in Columbus, Indiana (left).

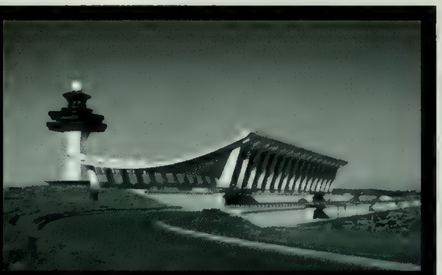
saw Morse and Stiles Colleges at Yale, which Saarinen designed in a historicizing mode, he wrote, "Yale is a very sick place!" A few years later, Vincent Scully stated that Saarinen's Yale hockey arena with its swooping roof "embodied a good deal that was wrong with American architecture in the mid-1950s: exhibitionism, structural pretension, self-defeating urbanistic arrogance." From the grave, Saarinen had no way of rebutting his critics.

Saarinen's reputation also suffered because his office's archives remained out of reach of scholars for more than 40 years. So instead of being rediscovered by new generations of architects and writers, he was relegated to a kind of architectural purgatory and barely mentioned in the standard histories of Modernism.

All that changed in 2002 when Roche (who took over Saarinen's practice) donated his master's archives to Yale and opened the scholarly floodgates. *Eero Saarinen: Shaping the Future*, a major exhibition that opened in October at the Kunsthalle Helsinki and will travel through Europe and the United States until the 100th anniversary of Saarinen's birth in 2010, is the first fruit of this effort to reexamine the architect's life and his body of work. Along with an accompanying book, edited by Eeva-Liisa Pelkonen and Donald Albrecht, the exhibition strives to do nothing less than restore Saarinen's place at the center of Modern architecture and emphasize his relevance to architects practicing today. That's quite a tall order, and if the exhibition doesn't totally succeed in this glorious mission, it certainly goes far in reminding us why *Time* magazine put Saarinen on its cover in 1956, and how his buildings have continued to wow both the public and architects for so many years.

"Eero Saarinen is back," exclaimed Robert A.M. Stern at the exhibition's opening in Helsinki. As dean of Yale's School of Architecture, Stern helps oversee the Saarinen archives and worked with three other organizations—the Finnish Cultural Institute in New York, the Museum of Finnish Architecture in Helsinki, and the National Building Museum in Washington, D.C.—to mount the exhibition. Amazingly, the show is the first-ever Saarinen retrospective.

But the critical question is, whose Eero do we see in this exhibition? Although he practiced on his own for only 11 years, having worked earlier in the office of his father, Eliel, Saarinen was a master of many identities. Indeed, it was his lack of a signature look that raised suspicions among certain critics that he lacked convictions. Banham saw him as a kind of architectural ad-man, who would whip up a "style for the job." Does the exhibition highlight Saarinen, the favorite of corporate America? Or Saarinen, the shaper of America's international image? (He designed two U.S. embassies—in London and Oslo, respectively.) Or Saarinen, the designer of classic midcentury furniture, whose Womb Chair and Pedestal furniture series, both for Knoll, remain hugely popular today? Or Saarinen, the innovator of structural expressionism and popularizer of new materials? The bold forms of his TWA Terminal, Gateway Arch, and many other projects never failed to delight the public, while his use of new materials, such as Cor-Ten steel and mirrored glass, were seen by some critics as gimmicks to get more attention. Or is it Saarinen, the proto-Postmodernist? Witness his



Both the Gateway Arch in St. Louis (left) and Dulles Airport outside of Washington, D.C. (above), were completed after Saarinen's death. The Deere and Company building (below) was one of the first to use Cor-Ten steel.

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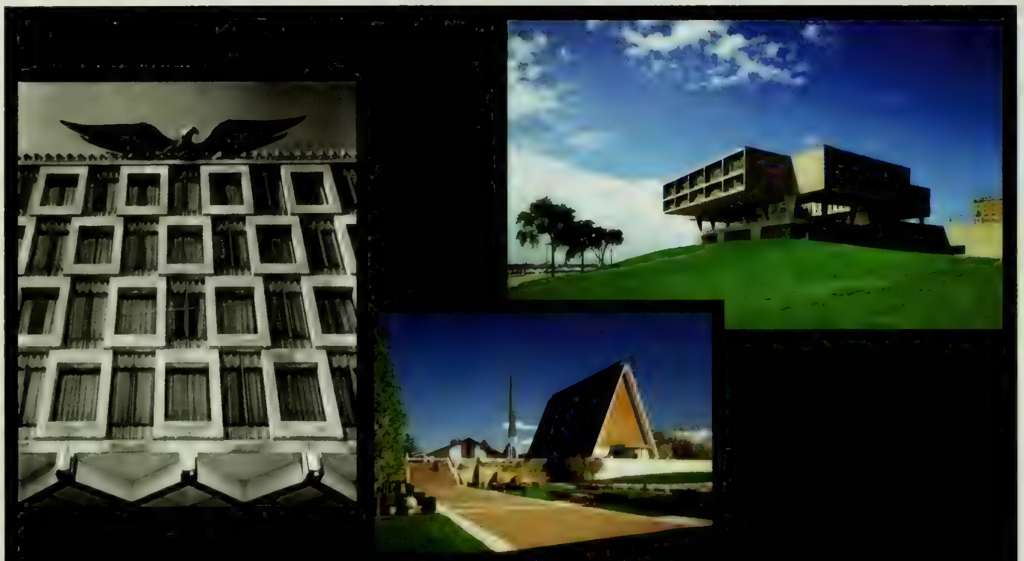
Morse and Stiles Colleges at Yale, as well as his embassies in London and Oslo, which respond to their contexts by abstracting the historical styles of their neighbors.

The strength and the weakness of this exhibition lies in its unwillingness to pick one of these Saarinens for special treatment or consideration. While Donald Albrecht, the exhibition's curator, clearly relishes the multifaceted nature of his subject, his ecumenical approach smacks of trying to have it all ways. The accompanying book (a handsome tome with extremely readable essays by Albrecht, Pelkonen, Scully, Mark Coir, Sandy Isenstadt, Reinhold Martin, and Will Miller) falls into the same trap—finding a Saarinen for almost everyone.

No doubt, future exhibitions and books will focus on particular aspects of Saarinen's architecture, unburdened by the need to cover everything at once. After 40 years of opinion makers neglecting Saarinen, though, I guess it's understandable that his admirers—finally privy to his extensive trove of drawings, private writings, and all kinds of documentation—can't help but sing all of his praises.

The exhibition, indeed, has something for everyone, covering his life, furniture, architecture, planning, and the collaborative nature of his practice. It features sections on his beginnings at Cranbrook, his residential work—such as the J. Irwin Miller House in Columbus, Indiana, two Case Study Houses, and designs from the early 1940s for preassembled housing—his community-building plans for colleges and churches, and his corporate commissions. There is a final section, entitled "Shaping an American Identity," which looks at his embassy projects, memorials (in St. Louis and Milwaukee), and public projects, such as TWA and Dulles.



Saarinen developed a different look for each project, as seen in his U.S. Embassy in London (above left), Kramer Chapel (above center), War Memorial Center in Milwaukee (above right), and G.M. Technical Center (below).

As installed in the Kunsthalle Helsinki, the exhibition impresses visitors with large color and black-and-white photographs mounted in the building's high-ceilinged, second-floor rooms, with bands of smaller photographs running below. Albrecht has also assembled a fine collection of models, some original and some created for this show, as well as a few building components (such as a new mock-up of the curtain wall at the IBM Manufacturing and Training Facility in Rochester, Minnesota, which was touted as the "world's thinnest" at just 5/16 of an inch thick). Three flat screens present historic videos—one by Charles Guggenheim of the St. Louis arch being constructed, one created by General Motors to show off its good taste in design, and one run on CBS in 1962 to herald the opening of the TWA Terminal. The old videos are wonderful artifacts and help explain the excitement that Saarinen's work created way back when. In addition, Yale students have produced five digital animations of Saarinen buildings, providing a nice touch of modern technology to the task of analyzing his work.

The exhibition may be overly ambitious in its scope and its mission to rehabilitate the lost man of American Modernism, but it's an enjoyable exercise in looking backward and projecting forward. At a time when many people are questioning America's moral authority and its position at the cutting edge of design, *Eero Saarinen: Shaping the Future* provides a bright-eyed look at the man who once bestrode American architecture. ■

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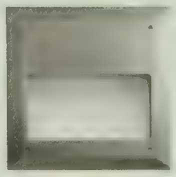

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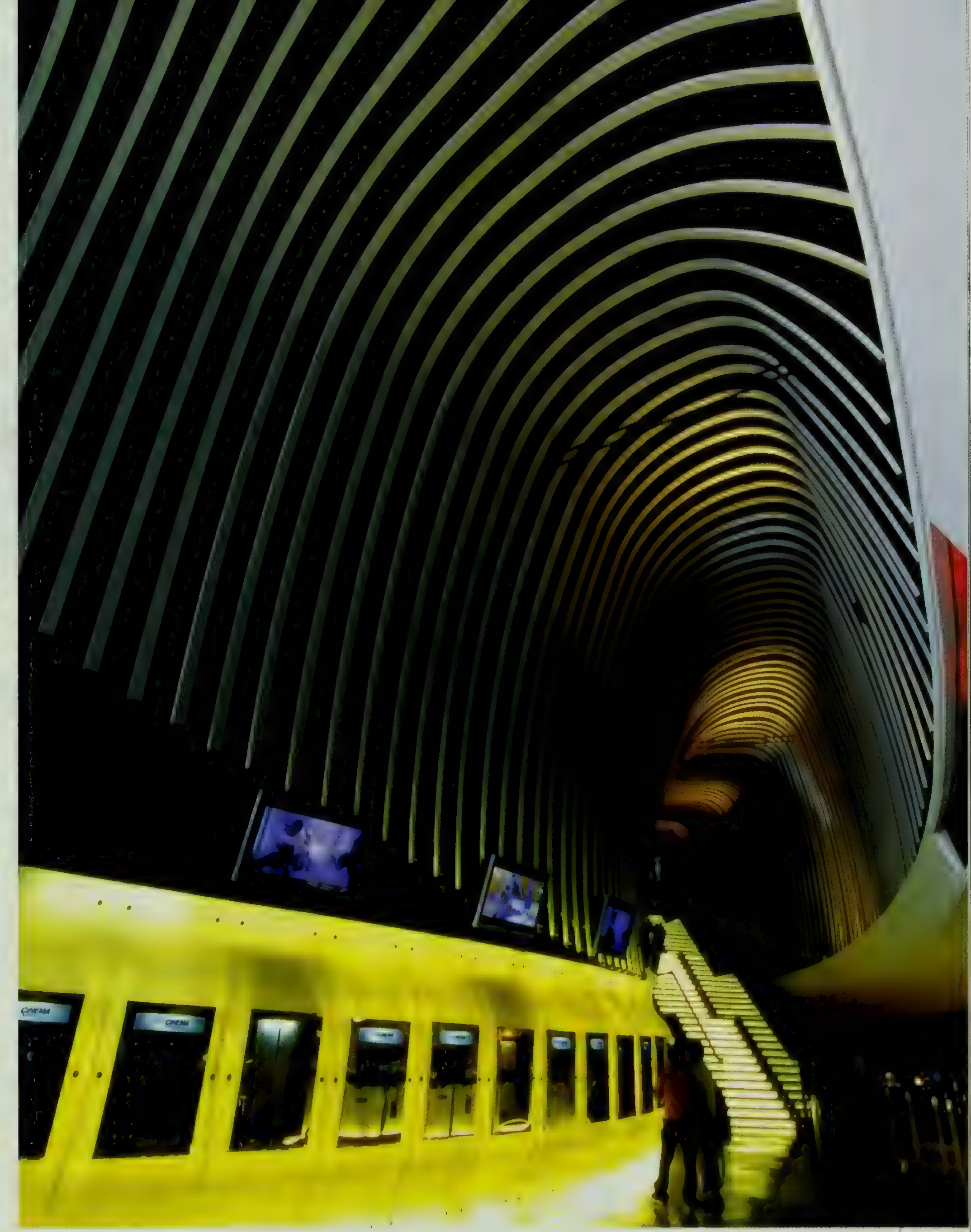

y Beth Broome

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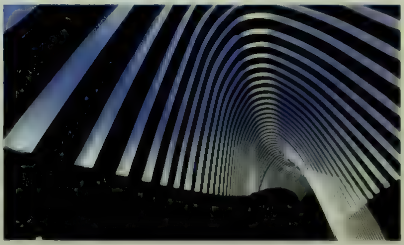
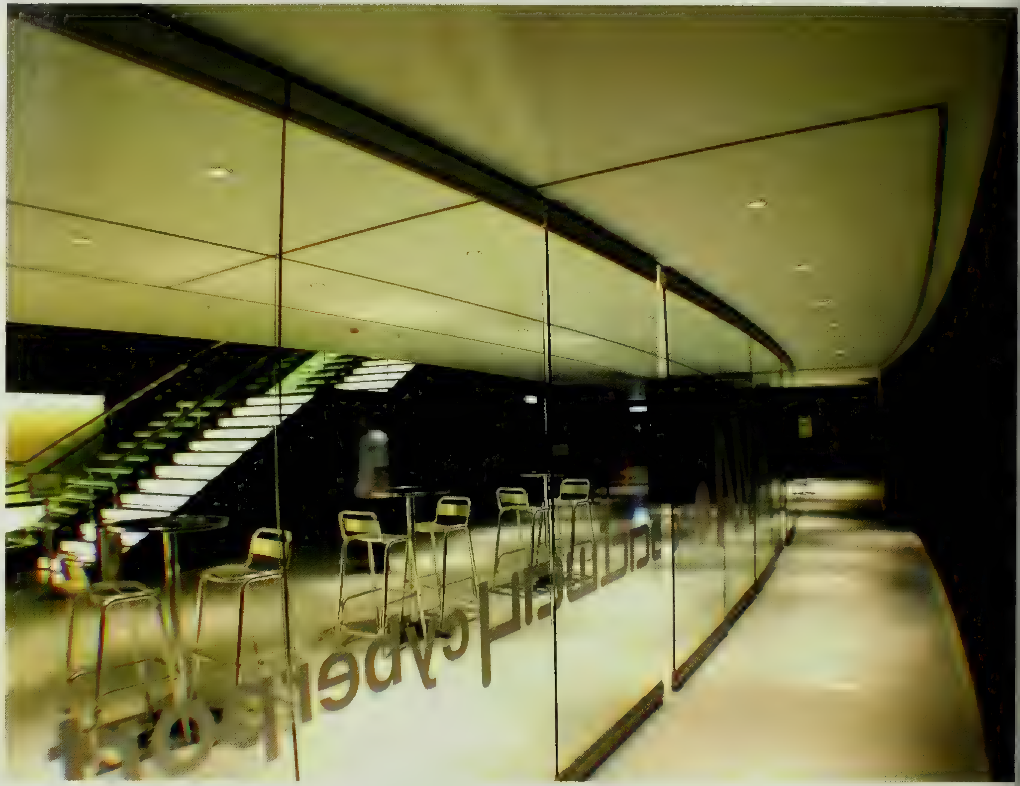
eight, asymmetrically curved foyer defined by a series of curved aluminum ribs.

If it feels like you've just stepped into the Bat Cave or *The Matrix 3*'s last human city of Zion, it is no
ccident. Project architect and interior designer Michael Tsang, of AGC Design in Hong Kong (which spe-
ializes in entertainment and cinema space planning), is a long-time movie buff. When he first visited the
aw concrete space, he was transported back to his childhood afternoons spent watching *Batman* on TV.
sang riffed on this sci-fi aesthetic, which nicely segued into a high-tech focus—a requirement for the
yber-themed mall.

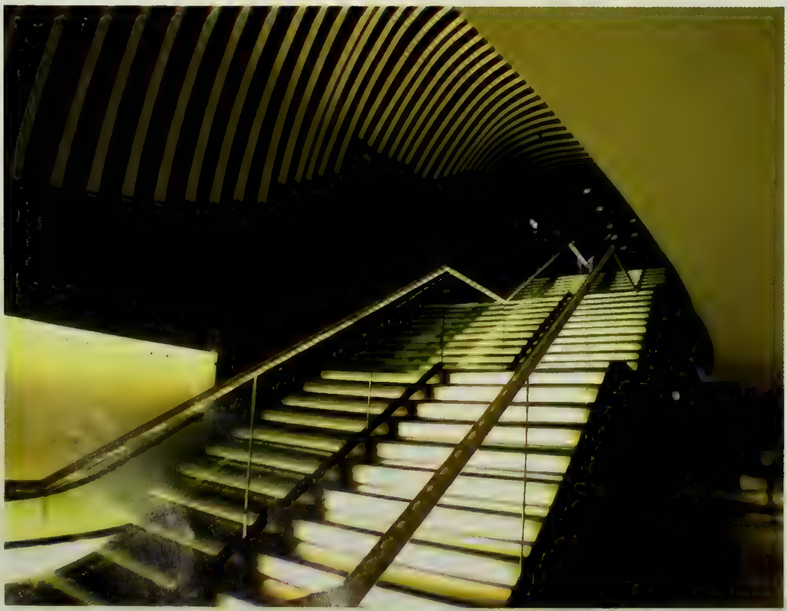




Aluminum ribbing defines Broadway Cyberport's futuristic, cavelike foyer (opposite). A backlit stair (right and below) leads down from the Cyberport shopping mall to the foyer and four theaters at street level.

Broadway Cyberport, says Tsang, "explores digital application in design." In this vein, the architect has created what he calls "Easy Cinema," which facilitates user-friendly navigation through the moviegoing experience. Supergraphics abound, as do automated ticket-vending machines embedded in backlit translucent polycarbonate paneling. Programmable lighting can be altered to complement special events and assists in way-finding. The largest theater features a digital projector, and fiber-optic connections convert it into an auditorium for videoconferencing or for viewing closed-circuit programming.

Increasing the dramatic effect of VIP grand entrances at premiers and the like, an illuminated stair leads from the shopping center and appears to descend from the ribs—each of which was custom produced to fit the wall curvature—down into the street-level foyer. No space is wasted. Voids below the seating are used for circulation purposes and other operational needs, such as ticketing and concession counters.



In keeping with the theme of flexibility that is integral to the "digital age," Broadway Cyberport is highly adaptable. Glass walls that form a partition for a café, for instance, can be moved to expand the foyer to accommodate different events. "People can go to the cinema for a movie, for a conference, to go to the lounge for a drink, or they can just walk by the space to and from the shopping arcade," says the architect.

Tsang has extensively studied theater culture, design, and trends and has drawn on his findings with hopes of defining the cinema of the future. Broadway Cyberport's "[CINE]tecture," as he calls his silver-screen-inspired architecture, does not just look futuristic, but it also has the higher aspiration of anticipating and responding to future applications and the expanded role of the cinema in our fast-changing digital universe. ■

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By Suzanne Stephens

If you go by newspapers and monthly consumer magazines, you might think there is only one female architect designing significant buildings today—Zaha Hadid. To be sure, the London-based, Iraqi-born architect deserves acclaim for her inventive assortment of zoomy structures completed in the last few years. But what about the rest? Aren't there other talented women architects out there, who, like Hadid, run their own design practices? RECORD has decided to take a closer look at women who run their own firms in the United States, to see how much gender affects getting ahead. How far have women come since the feminist call-to-arms of the 1970s? In 1977, the landmark exhibition *Women in American Architecture, an Historical and Contemporary Perspective* opened at the Brooklyn Museum of Art in New York. The show, organized by Susana Torre and sponsored by the Architectural League of New York, brought the contributions of scores of unheralded women architects, past and present, to the public's attention. What about today: Are women more prevalent in the profession than they were 30 years ago?

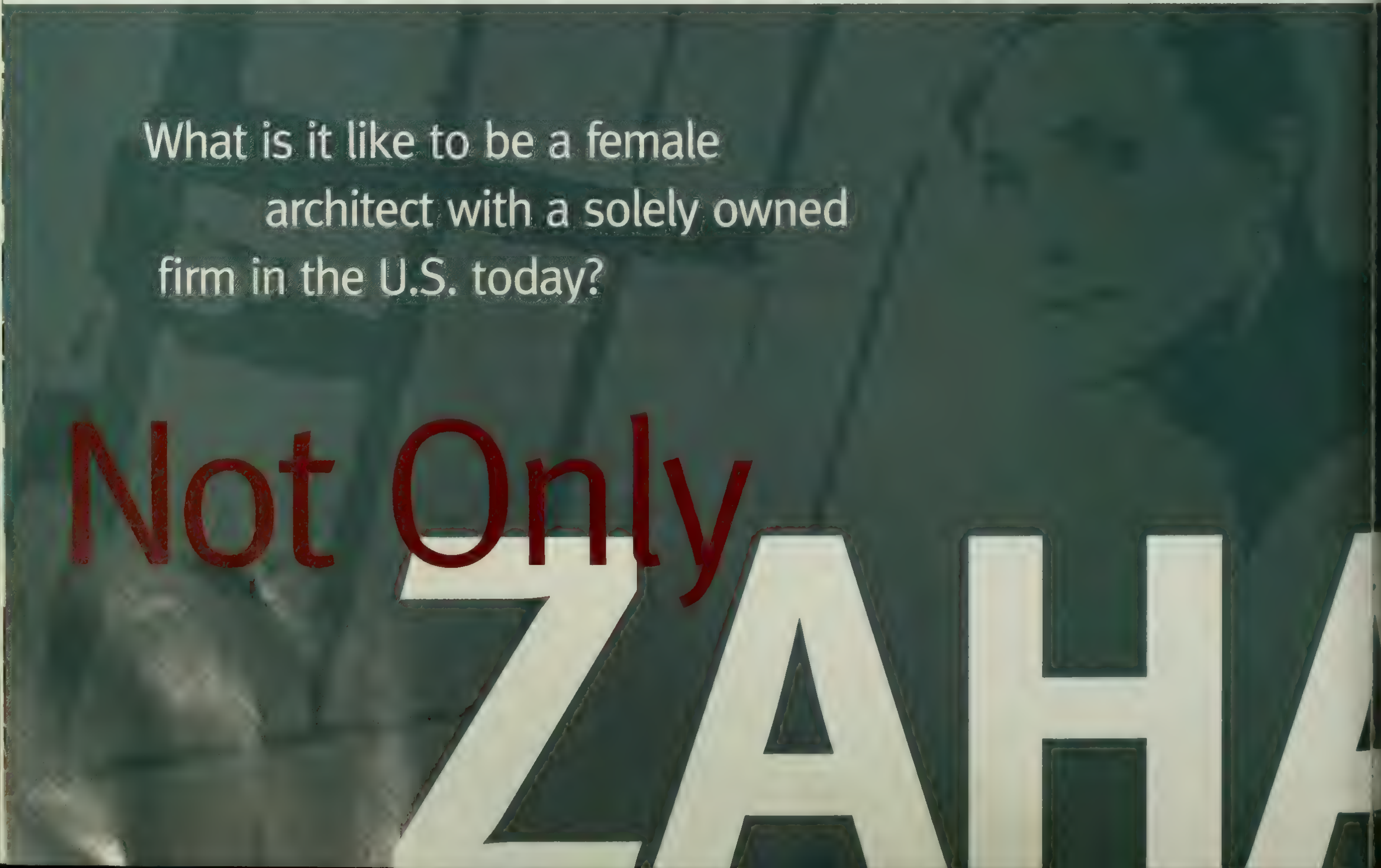
In order to reduce the number of variables in this not-very-scientific investigation, we talked to female architects who have practiced a number of years on their own, by themselves or with other women. We disallowed firms with male partners, unless the female principals had spent a length of time with their own firm before adding (or subtracting) male partners. The goal of this study is not to prove that women practicing alone are better or worse off than women with male partners: We just wanted to find out what it's like. And what advice would the female architect give female architecture students and graduates who are thinking of starting their own firms?

While we have contacted women architects from various areas in the U.S., most come from New York City. The sample is skewed geographically probably because, with all the architecture schools in the city or nearby, and because of New York's attractiveness to young people looking for jobs, it tends to be a hot bed of female architects with their own firms. And in this highly competitive environment, with serious economic stakes, the women's stories bear scrutiny for others thinking of following the same path.

Today, women make up only 13.3 percent of the American Institute of Architects (AIA), whose members include 62,400 licensed architects. (Altogether, registered architects number 91,000 to 110,000, depending on the source.) The percentage of females may sound mingy, but it indicates serious progress. In 1975, the AIA determined that women composed only 1.2 percent of all registered architects. By 1991, the AIA estimated that 9.59 percent of its members were women, with 4.3 percent owning their own firms. Fifteen years later, women form 13 percent of solely owned practices in the AIA. However, the number of female architecture students, according to the National Architectural Accrediting Board, averages 40 percent for B.Arch. and M.Arch. programs; apparently only a small portion enter the profession.

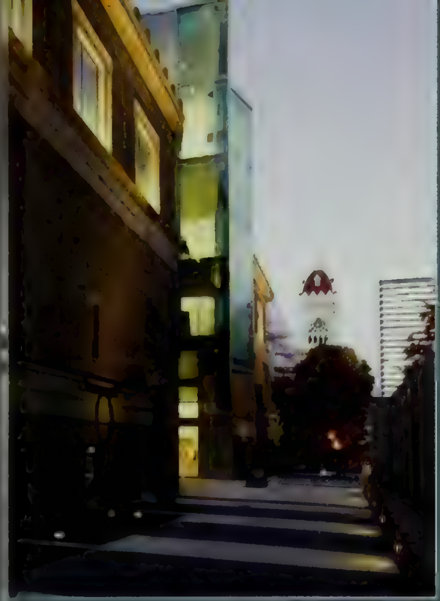
Why do it?

Most women interviewed who decided to go it alone wanted a practice where they made the design decisions, period. Suman Sorg, FAIA, who



What is it like to be a female architect with a solely owned firm in the U.S. today?

Not Only ZAHA



Ann Beha Architects
Portland Art Museum,
Portland, Ore., 2005

EOA/Elmslie Osler Architects
Anthropologie store project,
Burlingame, Calif.

Heather H. McKinney Architects
Robbs Run Residence,
Austin, Tex., 2005

has a 40-person office, Sorg and Associates, in Washington, D.C., says, "I was obsessive, an achiever, and felt I could do it better. Also, I wanted the freedom." Anne Fougeron, AIA, with a nine-person firm, Fougeron Architecture, based in San Francisco, says, "I want to prove a point about being a female architect with her own office." Some of the women who had male partners for brief stints, often when starting out, agree with Page Ayres Cowley, AIA, whose 11-person New York practice specializes in preservation: "Partnerships don't work out if you have different expectations about the time and income it takes to run your own business." Ann Beha, FAIA, who owns a 30-person, Boston-based firm, finds her partner of 20 years, Pamela Hawkes, FAIA, integral to her design and renovation practice.

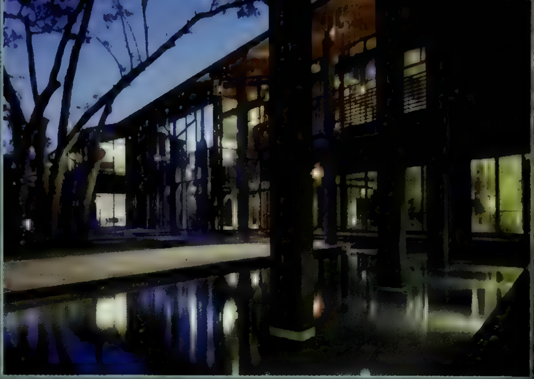
Many of the women came out of architecture school just after the 1970s, and did it just because it seemed possible. Others backed into having their own offices by taking on small jobs, sometimes when moonlighting while employed by large offices. Women raising children argue that owning their own firms has given them more flexibility with their time, since it was hard to stay competitive in larger firms while tending to a family (even with helpful husbands).

Katherine McGraw Berry, AIA, who started her own one-person office in New York in 1985 when she had twin boys, came from Kohn Pedersen Fox. But she found the flexibility of her practice meant it stayed small. Heather McKinney, AIA, of Austin, Texas, observes, "By the time children are old enough, the female practitioner may not have enough experience in the variety of building types—especially complex ones—needed for a large practice." About 40 percent of the women interviewed have had children. As Beha, who raised two children, says, "It's just one more hard thing to do."

Most women in this sample come from the generation of women educated in the late 1970s and 1980s, and have been in business for themselves about 10 to 20 years. The size of the offices ranges from one to 40, with a number in the 20-to-30-person range. Most offices, however, average eight to 16 architects and designers. One architect, Sophia Gruzdys, AIA, who spent her formative years in a large office—at Pei Cobb Freed—where she says principal Harry Cobb "was instrumental in my development," has a one-woman office in New York. Now director of undergraduate studies in the architecture major of Yale College, Gruzdys explains, "I don't want to work for someone where I have no control." But freedom has its price: To maintain her solvent, solo status, Gruzdys, who opened up her office in 1988, has taken some architectural jobs she was not that crazy about.

Gisue and Mojgan Hariri, two sisters who have practiced together since 1986, got the idea to join forces after visiting the houses of Greene & Greene in Pasadena, California. "If two brothers could do it, we thought we should give it a try," says Gisue Hariri. Robin Elmslie Osler grew up in an architectural environment—her father, David Osler, had his own firm, and her great uncle, George Elmslie, was a partner in the Prairie School firm of Purcell & Elmslie, in Minneapolis. Although Osler came to architecture after a career as a fashion model, the early exposure to construction sites with her father convinced her to go to Yale's architecture school, where she graduated in 1990. Osler opened her New York office, EOA/Elmslie Osler Architects, in 1996; it now numbers eight people. Not surprisingly, contacts in the fashion business have generated a number of commissions—although one of the earliest, the offices for DNA Model Management, actually came through architect Richard Gluckman, FAIA.

Wendy Evans Joseph Architecture
Price Family Holocaust Memorial Garden and Exhibition, Salt Lake City, 2002



Helfand Architecture
Automated Trading Desk Technology Campus, Mount Pleasant, S.C. 2002

Hariri + Hariri Architecture
Sagaponac House, Sagaponac, N.Y., 2004

Getting clients

The time-worn method of depending on referrals operates for women, many of whom met clients while working in others' offices. Some took a more aggressive tack. Wendy Evans Joseph, FAIA, started up her six-person office in 1996, when she designed a pedestrian bridge at Rockefeller University in New York City. One night at a dinner party, the president of the research university had described the economic problem of building the bridge to her. Joseph, who had worked on large commissions, such as the Holocaust Museum in Washington, D.C., while she was at Pei Cobb Freed, submitted an unsolicited proposal, using engineering consultants plus Columbia students working on her dining room table. She got the job.

Andrea Leers, FAIA, and Jane Weinzapfel, FAIA, who opened their Boston-based, 22-person practice in 1982, specialized in infrastructural and technical work, such as the Operations Control Center for the Massachusetts Bay Transportation Authority, from the start—and still do. "We have had a slow, steady growth with low budget, low visibility projects, which insulated us from economic boom-and-bust cycles," said Leers. It also has meant that the gender question has been less of an issue, since public-sector programs encourage minority involvement. Karen Bausman AIA, notes that New York City is trying to include women-only architecture firms in its commissions. Both she and Beyhan Karahan, AIA, each with 11-person and 15-person firms, respectively, in the city, are on the list of architects for New York's design excellence program in its Department of Design and Construction.

GISUE HARIRI SAYS, "IF THERE ARE NO WOMEN AMONG THE LISTMAKERS, THEN NO WOMEN GET ON THE LIST."

One major change that female architects have noticed over the past 20 to 30 years is the increase in women as clients, especially in cultural, institutional, and public-sector work. Leers has noticed, that "being women means we appeal to clients who are risk takers." But Gisue Hariri notes about selection committees, "If no women are among the listmakers, then no women get on the list." For her part, Diane Lewis, AIA, who maintains a New York City firm that ranges from one to 11 architects, says, "I attract a special client—one with a particularly intellectual and artistic bent." Her projects include art galleries, and currently a charter school, and a loft for Mark Wigley, dean of Columbia's Graduate School of Planning and Preservation and his wife, Beatriz Colomina, Princeton architectural historian and theorist.

Developers are often another story. As a rule, jobs with big-time developers remain elusive to most of the female architects interviewed. Deborah Berke, AIA, who has a New York office with 25 architects and designers, observes that the old-fashioned developer can still be dismissive, but then she doesn't run into that sort too often. "The ones who call women are already open; they are a preselected group," she notes. Julie Snow, FAIA, whose Minneapolis practice varies between 10 and 15 people, comments that some clients aren't going to feel comfortable with a female. "On the other hand, we've gotten jobs because male clients want a female perspective—and not only about the design of the kitchen," she says. Audrey Matlock, AIA, who has a 12-person office, AM Arch, in Manhattan, notes that if you don't get a job, you are never quite sure whether gender was behind it. Right ow she is designing a sports center and a large (30,000-square-foot) ouse in Kazakhstan—which she got through a referral from kidmore, Owings & Merrill (SOM), a former employer.

Ronnette Riley, FAIA, whose New York office opened in 1987 nd numbers 14 architects and designers, has found working with evelopers difficult because they are "conservative and risk-averse. hey want to work with people who look like them." Yet Riley adds she et one developer who became a client because of a car she bought— BMW 645 CI. "He stopped me and asked me about how the car ran," ys Riley, who, as a native Californian, could talk the guy talk. (She lso met another client, a writer, over a similar chat about the car.) lison Spear, AIA, who has a six-person office in Miami, Florida, loves orking with developers—the more intense the better. She just finhed her first 12-story condominium building, The Spear, for the eveloper of Aqua, Craig Robins. Spear, who provides interior design rvices as well as architectural ones, and used to be based in New ork, says many clients like the one-stop-shopping approach.

he press

ublicity matters, architects know. But how do you get press when you re starting out? Sometimes it's the nature of the work, sometimes the rt of client. When Spear lived in New York, she found she got a lot of ress with her first job—designing a loft 20 years ago for Jay cInerney, whom she had met through a group of young people at e National Arts Club. Spear, who studied architecture at Cornell niversity, had decided to take a job as an architect for the interior esigner Juan Pablo Molyneux, where she incidentally learned about ntiques, color, and fabrics. "The architecture training at Cornell was very Corbusian, very white," she says. "I thought a sconce was something you ate." Now that she has been working on both sides of the design divide, however, she finds that too often the press assumes she is a decorator. "The image is hard to overcome, especially in the shelter magazines," she says. Jennifer Luce, AIA, of San Diego, who has an interest in landscape and furniture design, as well as architecture, explains that not only her interests, but the fact that her firm, Luce et Studio, is 75 percent female causes people to assume the firm only does interiors. Having just won a *Business Week/Architectural Record* award for 2006 for her Nissan Design America building outside Detroit and a Nissan design studio in La Jolla, California [RECORD, November 2006, page 90], should help Luce dispel this notion, but she says, "It's hard, because I want to articulate every detail of the job."

New York–based Annabelle Selldorf, AIA, seems to find little difficulty getting press, much of it stemming from her art-world clients, who commissioned galleries and artists' lofts, plus the Neue Galerie Museum for German and Austrian Art in Manhattan. "I started alone in 1989 with a kitchen renovation," she notes. But now Selldorf Architects numbers 33 people, and, as the interior architect for the Urban Glass House, a condominium project in Manhattan designed by Philip Johnson/Alan Ritchie, she is part of a major "branding" campaign. Lindy Roy, who founded her office, ROY, in 2000, and averages about 10 people, was selected in 2001 to design a temporary courtyard installation at P.S. 1 Contemporary Art Center in Long Island City, New York, as part of the MoMA/P.S.1 Young Architects program. "The press coverage had an amazing effect—it triggered attention from clients," says Roy, a South African–born and Columbia-trained architect, who designed André Balasz's Hotel QT, a former office building near Times Square, in 2005.

Toshiko Mori Architect
Addition to the Cohen House,
Casey Key, Fla., 2005

Winka Dubbeldam/Archi-tectonics
497 Greenwich Street,
New York City, 2004

Luce et Studio
Nissan Design America,
La Jolla, Calif., 2003

Julie Snow Architects
Great Plains Software Development Building, Fargo, N.Dak., 2001

Selldorf Architects
Abercrombie & Fitch, New York City, 2005

Leers Weinzapel Assoc.
Harvard Science Center expansion, Cambridge, Mass., 2004

Ronnette Riley Architect
Tracey Reese store, New York City, 2006

Winka Dubbeldam, who arrived in the New York from the Netherlands in the early 1990s to study at Columbia, previously had an office in Holland. She got jobs working in the high-profile offices of Steven Holl, Bernard Tschumi, and Peter Eisenman here, but her experience in Holland led her to decide to open her own office, Archi-tectonics, in 1994. Now her firm has 15 architects and designers. "I had no press until 1997," she notes, adding, "I'm kind of shy." Dubbeldam explains she left it to "luck, and my theory that you keep working slowly, teach, research, and take on jobs you believe in—the slow route." Having a project in Millbrook, New York, included in the 1999 Museum of Modern Art exhibition *The Un-Private House*, however, didn't hurt.

Not surprisingly, a number of women architects remark that Zaha Hadid gets all the attention from the press, even while they avow, "More power to her." Of course the scale and dynamic inventiveness of Hadid's recent built work—from museums to automobile plants—has helped, along with her larger-than-life persona. As Toshiko Mori, FAIA, who has a New York office of a dozen people while occupying the chair of architecture at Harvard's Graduate School of Design, notes, "The press wants impact—people who produce an interesting narrative." Mori points out, however, that Kazuyo Sejima (of SANAA) is also getting attention from the press, and "she's the opposite of Zaha—very self-effacing and not gregarious." Still, she notes, the media go for the exotic and the extreme in architectural design: "Some of us deal with ordinary, not glamorous issues."

Getting publicity is important, but some women, such as Berke, contend that "good press does not specifically lead to new work—and this is not a gender issue. The press attention usually validates your work for your existing clients." Nevertheless, Berke says that people tend to keep clips on an architect—for years. When Jerry Adler was writing *High Rise: How 1,000 Men and Women Worked Round th Clock for Five Years and Lost $200 Million Building a Skyscraper*, published in 1993, he focused attention on Matlock, then a senior designe at SOM. She easily came across as one of *High Rise*'s liveliest characters *New York* magazine even prominently displayed a photo of the blond haired Matlock in a black leather jacket on a red Ducati motorcycle i its May 3, 1993, coverage of the book. By then, Matlock had opened he own storefront office in New York City's Tribeca—where she and he team of 12 visibly demonstrate to passersby what an architect does.

Related to press coverage is the question of marketing—tha is, going after work in a systematic way. Many of the women architect interviewed take a wait-for-the-phone-to-ring approach. Fougero admits that she "tries to meet new people and have my clients introduce me to other clients." She also argues that "women architects hav to work twice as hard as men to get attention and prove themselves. Margaret Helfand, FAIA, whose New York office, Helfan Architecture, numbers 10 architects and designers, maintains tha marketing is "the most critical piece of daily experience, yet th toughest nut to crack for any architect." Academic experts concur Katherine Anthony, professor of architecture at the University o Illinois-Urbana Champaign and author of *Designing for Diversit* (2001), argues that "networking is all the more crucial to women wh run their own architectural practice."

How the network works

Networking, of course, helps if you practice architecture near you alma mater, and can make use of all those former colleagues who late turn into potential clients. Some women don't do this. Helfand gre

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up in California, went east to Swarthmore College, in Pennsylvania, but then headed back west to study architecture at the University of California, Berkeley, before settling in New York, where she started her own office 25 years ago. Jennifer Luce grew up in Canada, and then worked in Virginia before moving to San Diego in 1987, where she could not rely on academic or professional contacts. "It took a long time," she says.

Similarly, McKinney studied architecture at the University of Pennsylvania, in Philadelphia, and then worked in Boston before heading for Austin in 1984, where most of the architects went to the University of Texas. She too had to build up contacts over the years, but cites her involvement with the organization Austin Women in Architecture as crucial in fostering communication among colleagues.

A number of women find meeting architects through architectural organizations leads to jobs. Wendy Evans Joseph, who has served as president of the New York Architectural League, and, like Helfand, was a president of the New York chapter of the AIA, reports that the commission to design The Inn at Price Tower in Frank Lloyd Wright's landmark structure in Bartlesville, Oklahoma, came through architects in Tulsa whom she met on an AIA committee. "It was too small a job for them and required a fair amount of interior design," she says. Leers notes that teaching, besides providing a way of exploring ideas, turns out to be good for networking. "Male teaching colleagues have turned out to be advocates and sponsors of our firm, particularly in situations where they are advising clients, boards of directors, and deans of schools on upcoming buildings," she says.

LEERS SAYS, "WOMEN ARE MARKED." HELFAND DECIDED, "I MIGHT AS WELL BE A BILLBOARD FOR MY ARCHITECTURE."

Marked women

In terms of marketing and getting the job, the women are quite aware they are still unusual. Leers accepts that "women are marked," and need to be conscious of that while walking into an interview: "Jane and I see a design challenge; the client sees two women." In going into the client meeting, many women note that the presentation style, including the dress, sends important subliminal signals. Helfand decided early on that "I might as well be a billboard for my architecture." Clients and press have commented (approvingly) that the geometric, simple lines, varied textures, and crafted details of her attire provide a fitting correlative to her Modernist design work.

A number of women notice that clients comment on their working style, as well. According to Cowley, clients remark that women *listen* to them, an observation that a number of other females corroborate. As Luce puts it, "Clients feel we don't have an ego thing." It also makes the job in the office go more smoothly. Sorg says, "I love working with women; they aren't defensive about their mistakes." In the old days, however, there was too little ego demanded of women. At 79, Debora K. Reiser, who graduated from Pratt in 1948, but never got her license, has been in a variety of work situations, ranging from working with George Nemeny, in New York, to having her own firm, in Dobbs Ferry, New York, and forming an association

Alison Spear, AIA
The Spear, Aqua,
Miami Beach, Fla., 2003

Katherine McGraw Berry, AIA
House in Tivoli,
Tivoli, N.Y., 2000

Diane Lewis Architect
Charter school projec
New York Cit

Deborah Berke & Partners
Irwin Union Bank,
Columbus, IN, 2006

Page Ayres Cowley, Architects
La Tourette Golf Club House restoration,
Staten Island, N.Y., 2003

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This is where we automate the tunnel ventilation network.
5
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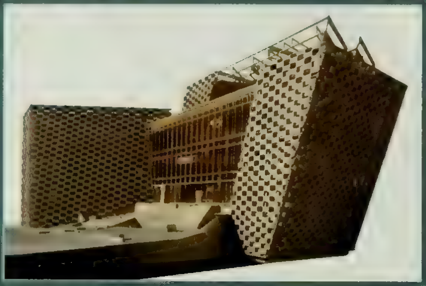
Audrey Matlock/AM Arch
Sport Center project,
Medeu, Kazakhstan

Karen Bausman & Associates
Hamlin Chapel and Library project,
Hamlin, Pa.



Sophia Gruzdys, AIA
Private Residence,
Begur, Spain, 2006

ROY
The Living Lab for L'Oreal,
Los Angeles, 2003

Susana Torre,
Housing in Carboneras project,
Almeria, Spain

with her son, Jesse Reiser, and his partner Naneko Umemoto, based in New York. As she recalls, "When I started, women hid in the back of the room. If the clients thought a woman worked on the project, they wouldn't respect the design."

On-site

Today, when women go out to the construction sites, they often meet up with contractors long stereotyped as having an adversarial role with architects. Cowley observes that contractors seem to fall into three groups: "One third of them don't want to be told what to do; one third want to be told, but constantly have to let you know they know what they're doing; and one third, no matter what, want to pick a fight." Nevertheless, a number of the women say that after they show they know what they are talking about, the job runs smoothly. Yet Karahan remarks that when she visits a site for publicly sponsored work, the contractor's questions are rarely directed to her—always to the project architect, often a man. (Karahan, who teaches design studio and building construction at the New York Institute of Technology [NYIT], obviously knows the answers.) Dubbeldam comments that she usually doesn't have this problem—"but it helps that I am 6 feet tall," she says, half-jokingly. Osler also comments that her 6-foot-tall height often catches the men on the construction site off guard. One medium-height woman quipped that at least they can wear high-heeled boots if they need some extra "stature." Most female architects say that as they get older, the gender perceptions disappear, although Berry thinks she got her way more often with contractors when she was first starting out in her thirties. "They treat you differently when you're young. You can play with them. Youth can be tremendously persuasive." Yet Lewis conjectures contractors trust women more than men, noting, "They know women are going to be straight as an arrow about the payment schedule."

CONTRACTORS ARE GETTING USED TO WOMEN ON THE SITE, BUT YOU STILL HAVE TO PROVE YOU KNOW YOUR STUFF.

Architecture as a business

In the early days, says Reiser, no one worried about making any money—you just did it "because you could create beautiful work." Judy DiMaio, AIA, who is the dean of the School of Architecture and Design at NYIT, says that today it's not just about the passion, and emphasizes that women now are far more aware of the need to know about setting up architecture as a business. Yet the women interviewed did not have business training while studying architecture—nor did they think architecture school was the right place, with so little time to absorb everything else about design, structure, theory, and history. All say they learned the business on the job. Some, who had had male partners, were surprised to find they were better "businessmen." Joseph says she retained a good business consultant to come in and train her and her senior staff. Bausman depends on a financial adviser to help with her investment portfolio in order to get over the ups and downs of the economic work cycle. Riley suggests it's good business to be discerning about the clients—"especially the ones who use up an inordinate amount of the office energy, when the projects lead nowhere."

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2
3
This is where we regulate the lighting [illegible]
4
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And for the next generation

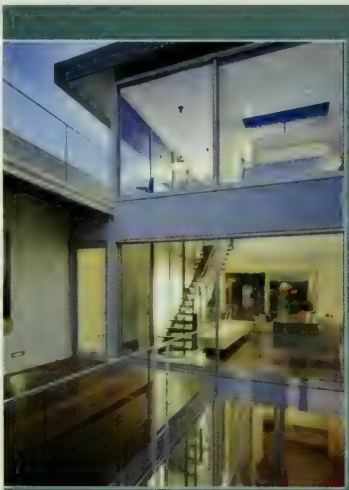
Many women architects teach, and say that the best way to encourage women to enter the profession is for them to see women on the faculty of architecture schools. They note that having women deans helps. (Donna Robertson, AIA, is dean of the College of Architecture at IIT, Karen Van Langen is dean of architecture at the University of Virginia, Adele Santos is dean of the School of Architecture and Planning at MIT, and, as noted earlier, Mori is chair of the department of architecture at Harvard's Graduate School of Design, and DiMaio is dean at NYIT.) Beha says students at the various schools where she has taught tell her, "You have changed the way we thought about practice." They reaffirm her role as "an agent for change as well as an agent for design."

Thirty years after her influential exhibition, Susana Torre finds herself as an "accidental developer" designing and constructing a residential complex in Carboneras, Spain. Looking at the current state of affairs, she observes that "female architects no longer have the historic burden of credibility with clients and contractors typical 30 or even 10 years ago. But most women seem to be heading small practices, producing small projects that don't capture the public's and the media's attention." Matlock advises women to get experience in large firms to keep from "getting stuck doing tiny projects later."

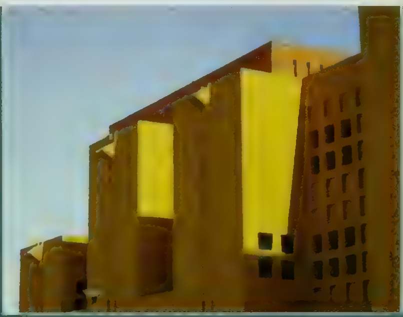
DEAMER WORRIES WOMEN ACCEPT A MALE IDEA OF SUCCESS; OTHERS SAY YOU NEED GRIT, PASSION, AND A THICK SKIN.

Some urge rethinking the idea of success. Peggy Deamer, who has been assistant dean and architecture professor at Yale, with her own office, Deamer Studio, in New York since 2002, maintains, "We need to put forth a different image of success in the profession when we choose teachers as role models. There are multiple ways of being a star—this affects how we award prizes to students as well as whom we hire to teach them. The models we have now are oriented to a male idea of success (even Zaha), and it's pretty limited and depressing." Deamer, who is taking over as dean of the School of Architecture and Planning at the University of Auckland in New Zealand in February, will have the opportunity to test her convictions, albeit a bit far from these shores.

In the final analysis, one could argue that definite progress has been made over the past 30 years, in the number of women running their own firms and in the range of commissions they get. More needs to be done for them to crash through the famous glass ceiling, and it should happen first in architecture schools. After school, the decision is up to women. They can have successful, happy lives within larger firms, or as partners with men. Or they can go it alone. But the women interviewed agree that in addition to talent and organization, architects who want to run their own businesses need specific personal qualities: ambition, persistence, grit, determination, passion, and a thick skin. (Charm doesn't hurt.) While they are not Zaha Hadid, her success is helping bring to the public the notion that a lone female architect can indeed create significant, even great architecture. So most of the women can cheer her on, all the while strapping themselves into their own vehicles to enter the race. ■

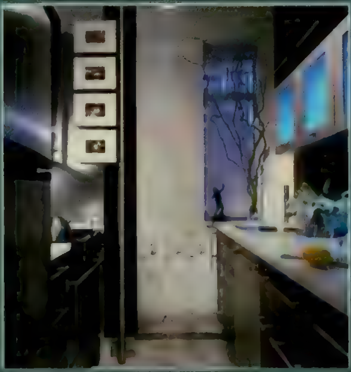


Fougeron Architecture
1532 House,
San Francisco, 2005



Sorg and Associates
U.S. Embassy,
Kabul, Afghanistan, 2006

Karahan & Associates
Combined Fire and Emergency
Medical Service Station,
Rockaway, N.Y., 2004



Judith DiMaio, AIA
Kitchen for a Collector,
New York City, 2005

Debora K. Reiser
House in the Northeast, 1996

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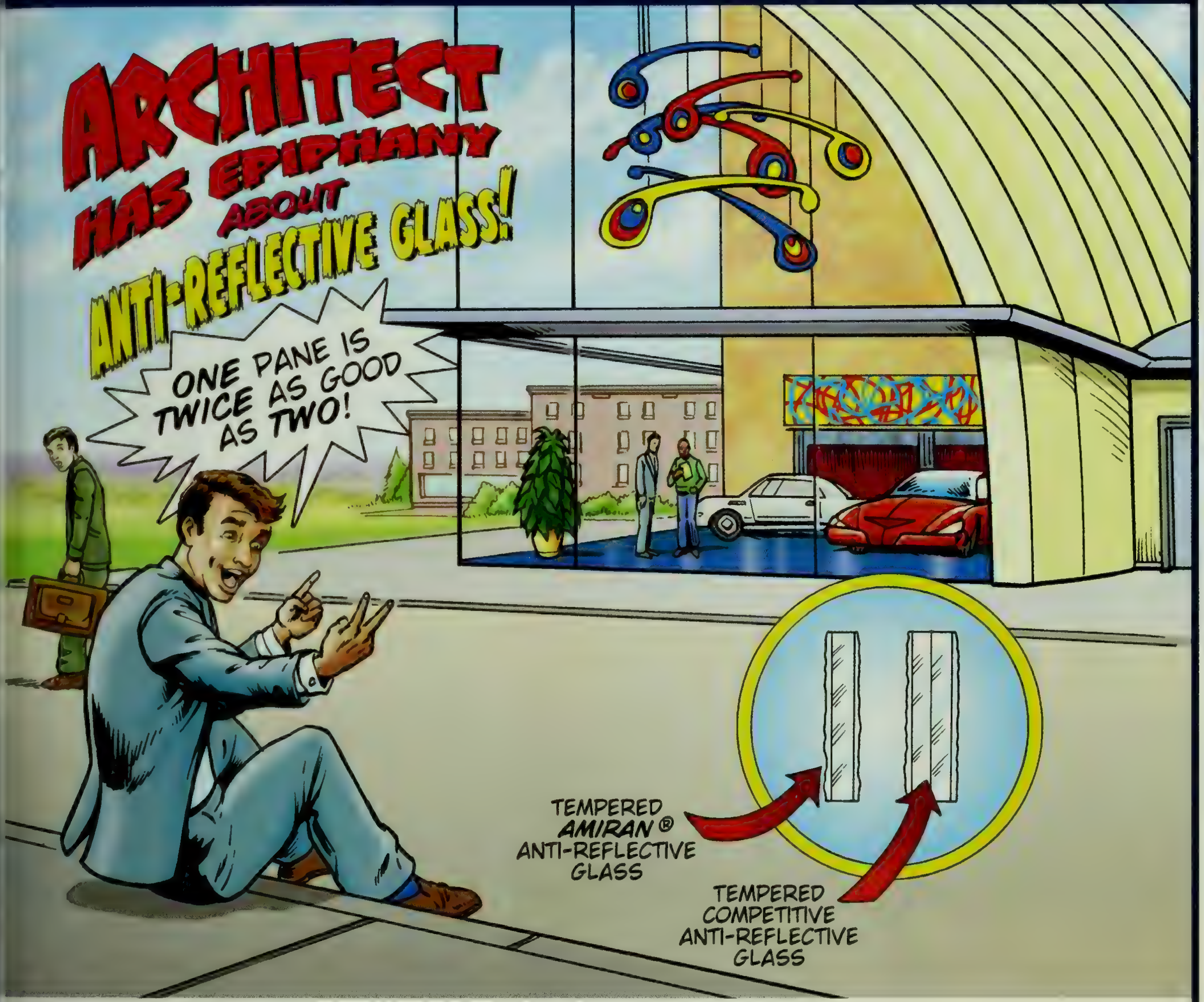
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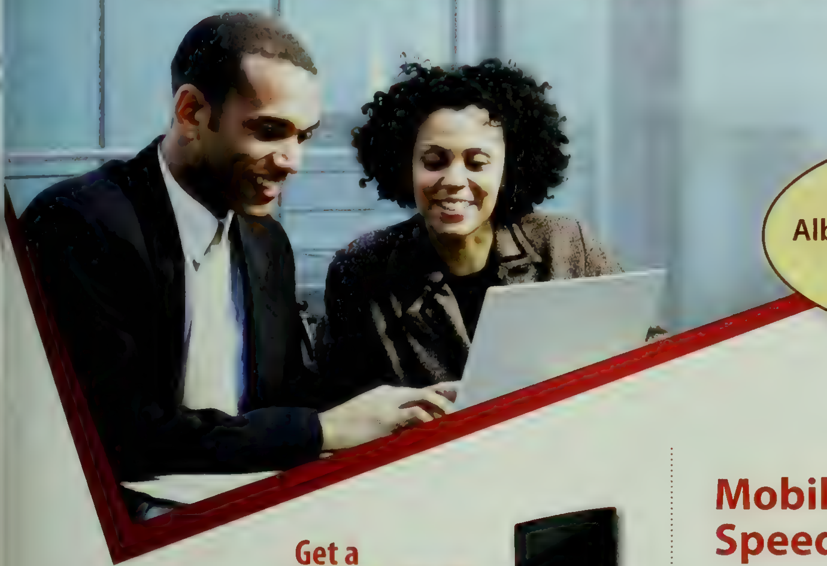

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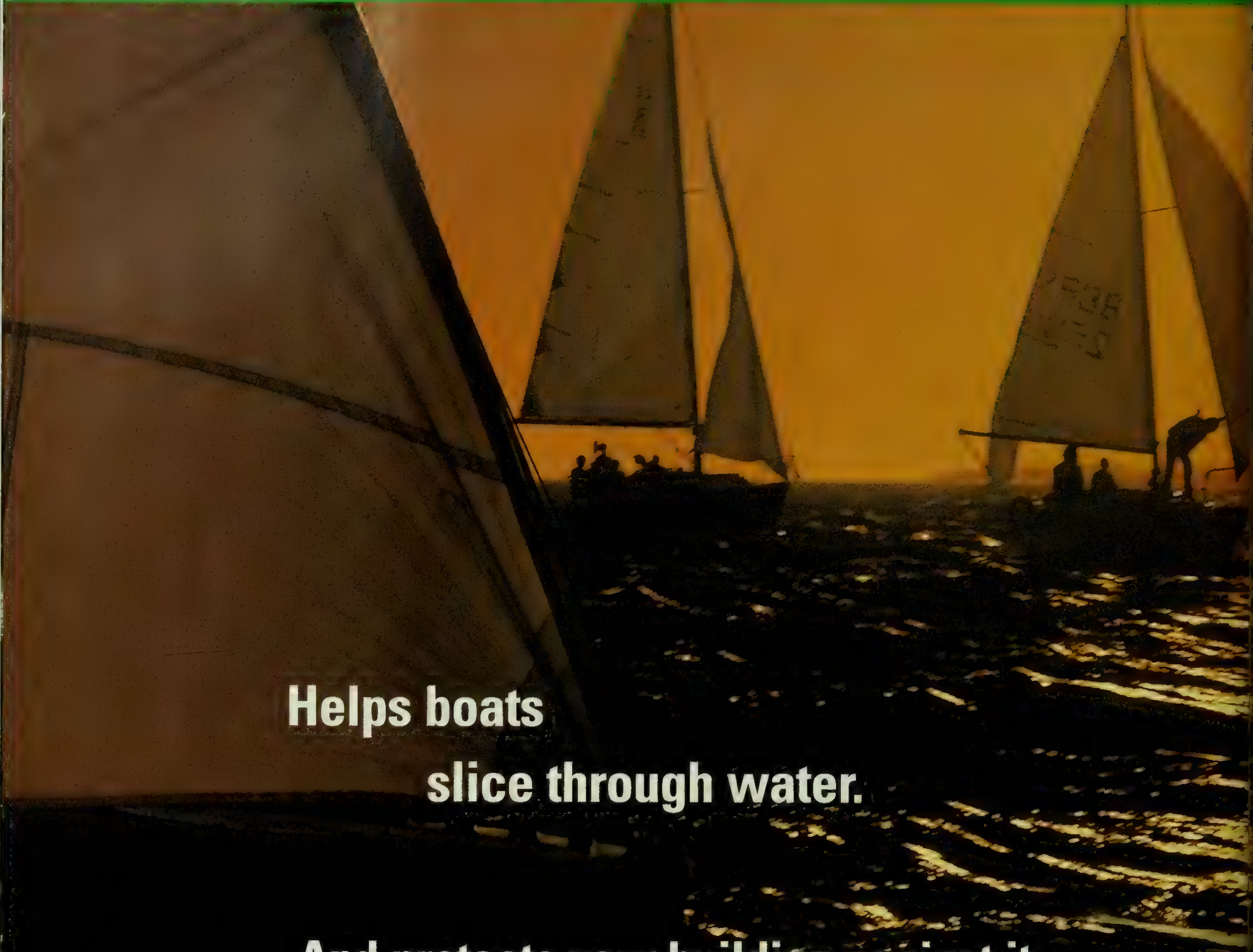

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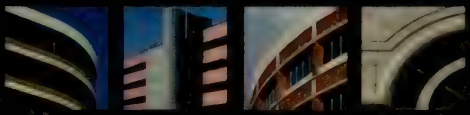

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Design Vanguard 2006

From sensuous skins and vibrant colors to inventive spatial experiences, the works of this year's emerging designers display mature skills

By Clifford A. Pearson

Young architects seem to be growing up faster these days. (Or maybe I'm just getting older.) Not long ago, cutting-edge firms were in thrall to computer technologies, and much of their work seemed to have been created during heavily caffeinated, all-night sessions playing with their latest digital toys. While computers have hardly disappeared, the firms profiled in this year's Design Vanguard are using them in less showy ways. Instead of hyperactive curves and German Expressionist angles, the architects shown here are designing buildings that get our attention with graceful proportions, elegant details, and inventive use of materials. Yes, they sometimes introduce electric colors that practically vibrate in front of your eyes, and often manipulate building envelopes into forms that wouldn't please Mies. But there's a discipline to the work that makes it feel real, gives it substance. Even when they're cutting loose and having some fun with a competition entry, these firms display a mature approach to design.

This year's Vanguard architects have built more than many of their predecessors, which may help explain their more grounded sensibilities. While the 10 firms featured here exhibit very different perspectives on design, almost all of them are exploring the nature of materials—from Kumiko Inui's elegant essay on glass and transparency for Dior to Studio Luz's theatrical application of common polycarbonate skylights at a restaurant in Boston, from SeARCH's reinterpretation of wood framing on a house in Holland to UnSangDong's folded and perforated metal scrim on a gallery in Seoul. Skin is important in all of these projects, but so are the spaces inside the inventively wrapped packages. All of the architects shown in the following pages express a commitment to the user's experience, creating buildings that elevate the people who live, work, study, shop, dine, and play in them. ■

THE FIRMS FEATURED ARE:	
UnSangDong Architects	p.74
Studio Luz	p.80
BAR	p.86
Studio SUMO	p.92
Kumiko Inui	p.96
Bercy Chen Studio	p.100
BmasC Architects	p.104
Assadi + Pulido	p.110
WORK Architecture Co.	p.116
SeARCH	p.120

Sculptural projects in Korea by **UnSangDong Architects** sprout from conceptual ideas

By Fred A. Bernstein

To the list of compelling, vertically stacked art venues—including Zaha Hadid's Rosenthal Center in Cincinnati and Brad Cloepfils's Museum of Arts and Design in New York City—add the Gallery Yeh in Seoul. All three buildings rely on dramatic facade treatments to announce their contemporary, not Modernist, intentions. The face of the Yeh is divided into five undulating opaque strips, which fold and buckle as they separate from the building core behind them. The tower is both a memorable urban sculpture and a rebuke to the horizontal banding of the cheaply made structures that surround it.

That a private gallery in Seoul would make such a strong statement is a sign of Korea's affluence and rapid integration of contemporary international culture. The building's designers, UnSangDong Architects, are Korean, part of a generation of architects still in their thirties who are completing major commissions in their home country. Among the firm's built works are the Gwangju Design Center, which, at 170,000 square feet, would be a plum commission for even the most seasoned U.S. firm.

Principals Yoon Gyoo Jang and Chang Hoon Shin studied in Korea and apprenticed at established Korean firms, yet represent the globalization of the profession. Jang, who has been short-listed for competitions in Spain, Israel, and Italy, makes no claims to creating an architecture particular to his home country. "Korean conditions are unavoidable propositions," he says, explaining that much of his work is instead based on research into timeless, placeless "phenomena, like floating." Jung also runs a gallery in Seoul, called Jungmiso, where he shows conceptual art. The firm's architecture, he asserts, is equally conceptual.

As is often the case, however, the trip from concept to construction can be fraught. In the case of the Gallery Yeh, elegant diagrams are meant to demonstrate that programmatic needs produced the bulges in the facade, but with little more than 1 meter (3.3 feet) "in play" in the finished building, the effect is primarily decorative. For the Gwangju Design Center, a school and resource center for product design in a booming industrial region, renderings show a variegated exterior corresponding to a variety of interior functions. As built, though, the main facade is a curtain wall that calls out for relief. Yet its interiors are indeed admirably light-filled and open, fulfilling the goal of local authorities to make design a key part of industrial development on Korea's West Coast.

More successful on the architects' conceptual terms is the Asian Culture Complex in Gwangju, a speculative project with an earthwork covering about 10 acres. Shaped like a hammock, this landscape element rises from a central "plain" into a pair of sloped surfaces. Small buildings housing galleries and theaters float in the hammock. Some rise above the surface like lanterns; others remain underground, evoking ruins. Another project, the Paris Olympic Memorial, is an intriguing assemblage of glass cells that impressively demonstrate how habitable structures can appear to float. And the firm's headquarters for Evervill, a branch of Hyunjin Group (a real estate developer/builder), comprises a beehivelike tower punctured by circular openings. Jang describes his goal as helping to "brand" Evervill, and perhaps the building may do great things for a company that produces generic office and apartment towers across Asia. ■

Architect: UnSangDong Architects
Location: Seoul, Korea
Date founded: 2001
Design staff: 10
Principals: Yoon Gyoo Jang and Chang Hoon Shin
Education: Jang: Seoul National University, M.Arch., 1990, B.S., 1987; Shin: University of Seoul, M.Arch., 2006, Yeungnam University, B.Arch., 1996
Work history: Jang: Practice—KACI Architects, 2001–03; HERIM Architects & Engineers, 1997–2001; Artech Architects & Partners, 1995–96; Seoul Architecture Consultants, 1990–94; Academic—Kookmin University, professor, 2001–present; Shin: Architecture studio himma, 2003; M.A.R.U. Architects, 2001; BAUM Architects, 1999; Artech Architects & Partners, 1995
Key completed projects: Gallery Yeh, Seoul, 2005; restaurant at Asia Publication Culture & Information Center, Paju, Korea, 2005; University of Seoul College of Law lecture hall and sports complex, 2004; Evervill headquarters, Seongnam, Korea, 2004; Paris Olympic Memorial, 2004; Gwangju Design Center, Gwangju, Korea, 2004; KTNG Culture Complex, Yongsan, Korea, 2004
Key current projects: ; Design Center, Honglk University, DeaHak-Ro, Korea, 2006; Gallery of Housing Culture, Chungju, Korea, 2006; Eco Housing, PyungChang, Korea, 2006; Froebel headquarters, Paju Book City, Korea, 2006
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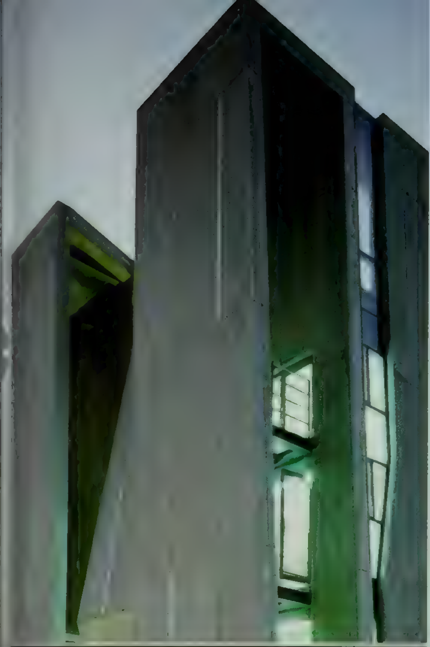
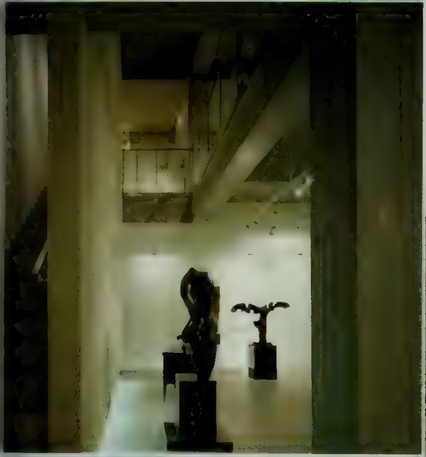
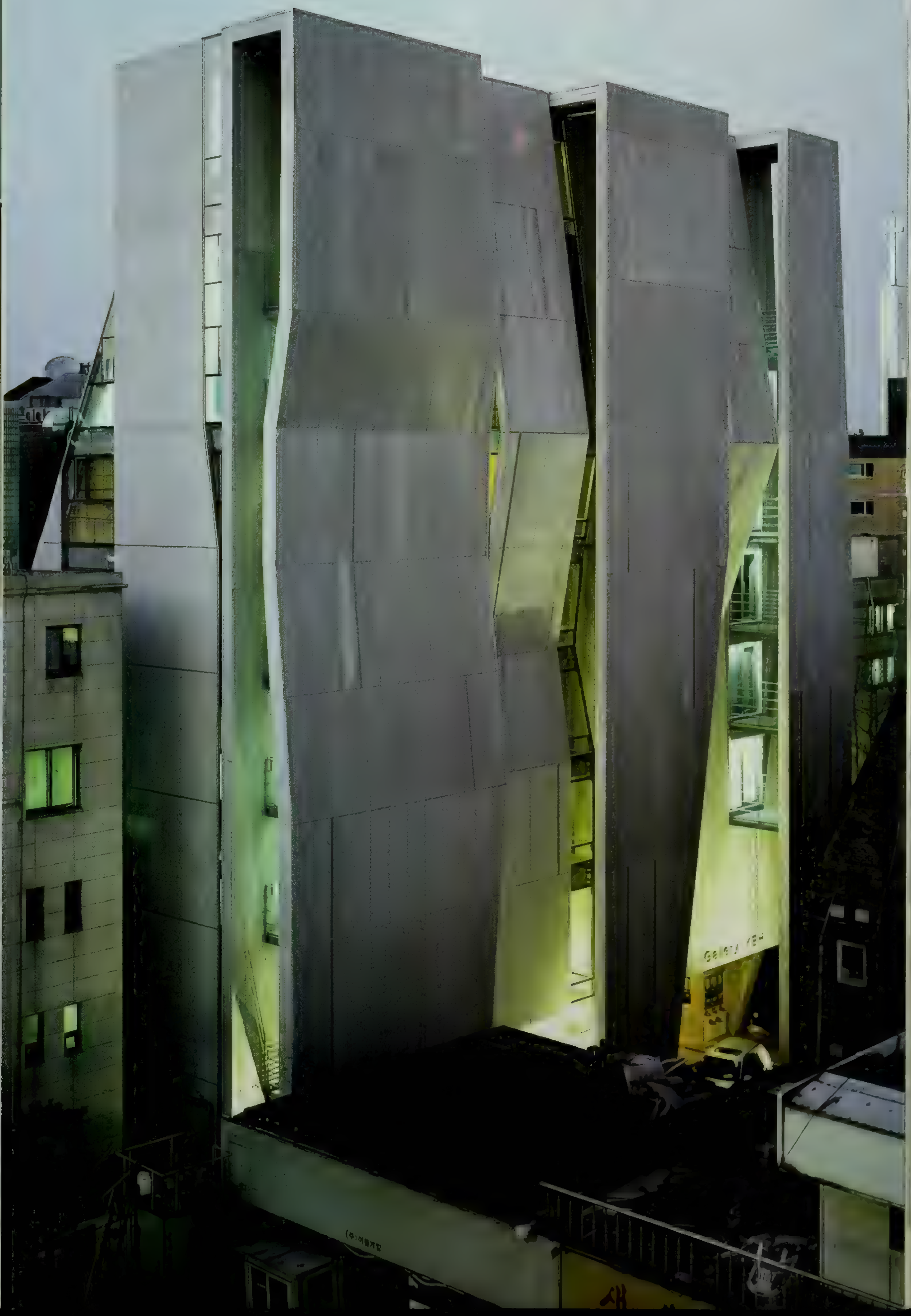
Fred A. Bernstein is a writer based in New York City who regularly writes for RECORD.

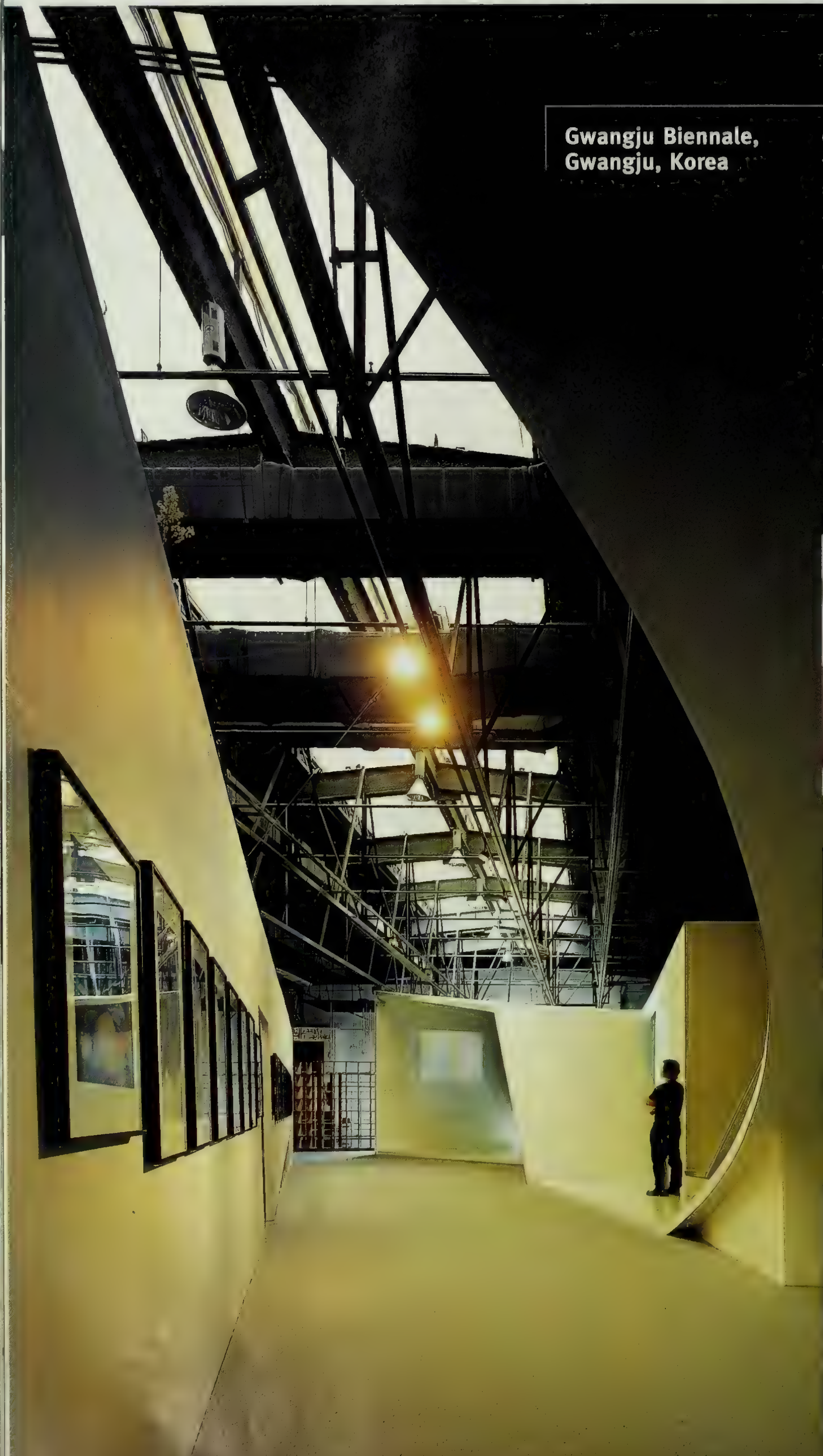




Gallery Yeh, Seoul

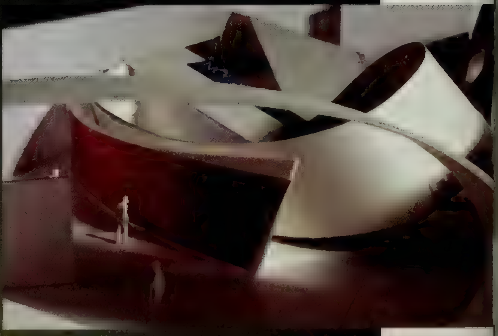
The architects treated the exposed concrete skin of the seven-story tower as a folded, sculptural "urban canvas." Rising from a base above two stories set below grade, five vertical bands undulate to reveal glazing as apertures into the gallery spaces. The interiors are finished with exposed-concrete and epoxy-coated panels, which create a Minimalist backdrop for a private collection of sculpture.

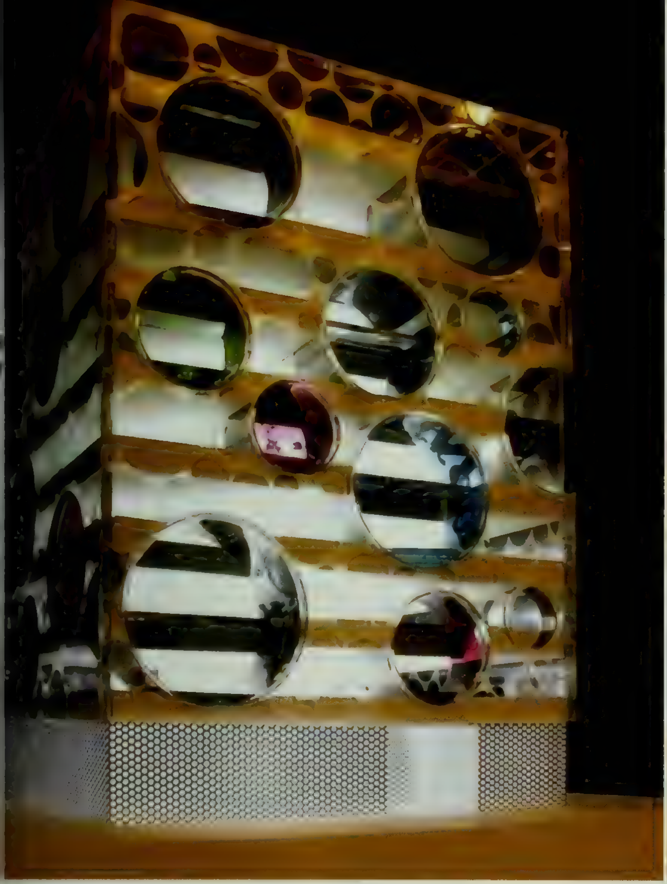




Gwangju Biennale, Gwangju, Korea

Creating a "theatrical topography" was the goal for the temporary exhibition spaces at the 2004 Gwangju Biennale, according to principal Yoon Gyoo Jang. Inspired by the show's theme, "A Drop of Water, a Grain of Dust," the architects designed exhibition booths like the cells of a living object, linked by curvaceous walls and pathways that represent the flow of water. In addition to contemporary art exhibition spaces, the interiors incorporated venues for lectures, parties, and performances.



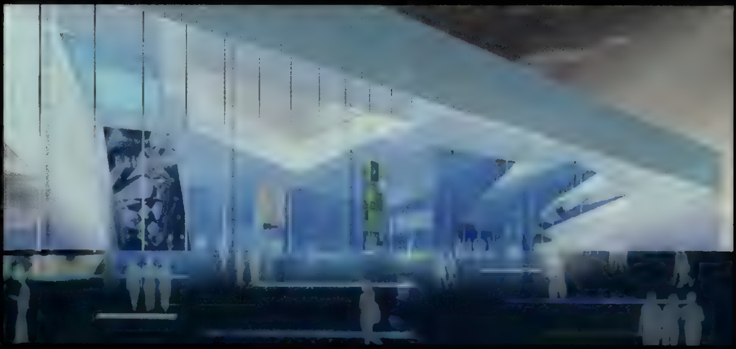


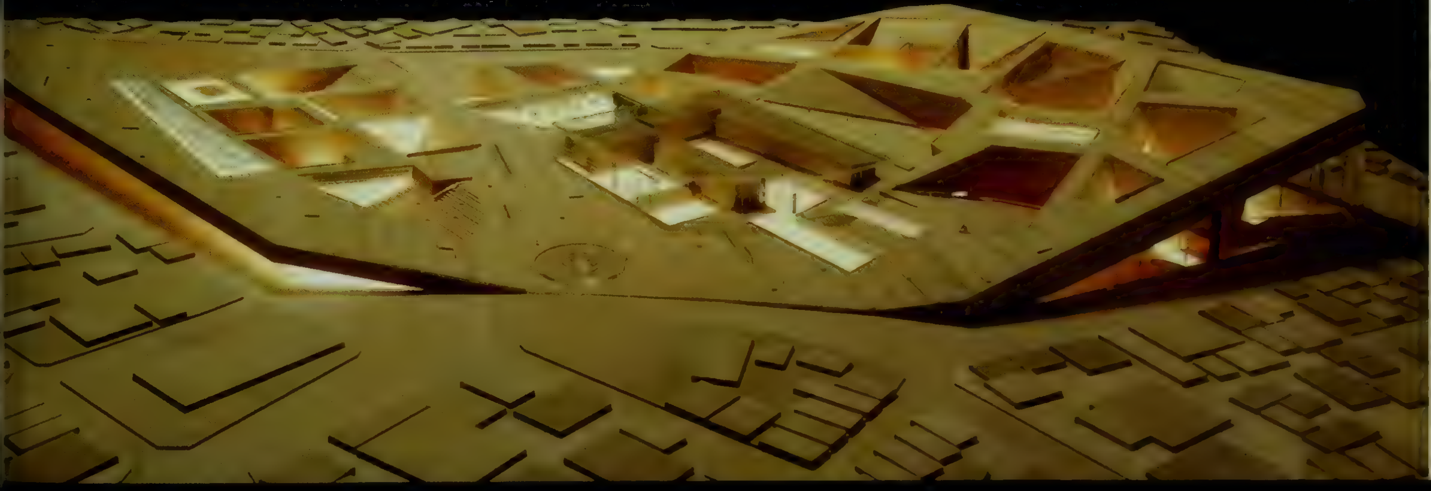
Evervill Headquarters, Seongnam, Korea

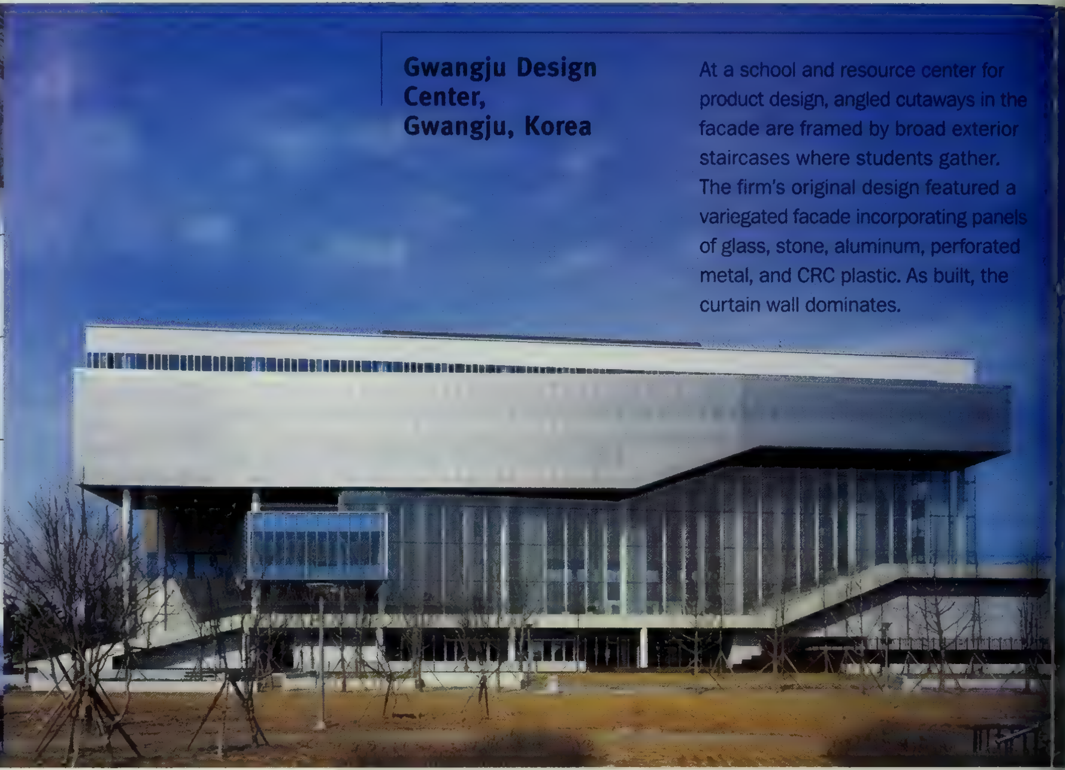
With a curtain-wall facade incorporating aluminum panels and colored glass, the new office tower for Evervill, one of Korea's leading development and construction firms, strikes a distinctive profile intended to support the company's branding. The exterior modular frame screens eight stories of office space, with two additional floors below grade. Interior finishes include exposed-concrete and wood decking.

ian Culture mplex, vangju, Korea

"We proposed that the extruded surface of the earth act as a framework for the Asian Culture Complex," says principal Chang Hoon Shin of the competition entry for a civic project. An earthwork centerpiece morphs into paths, open plazas, and the apexes of underground gallery spaces. "The complex becomes the strata of contours tracing the history of Gwangju while preserving the existing urban fabric."





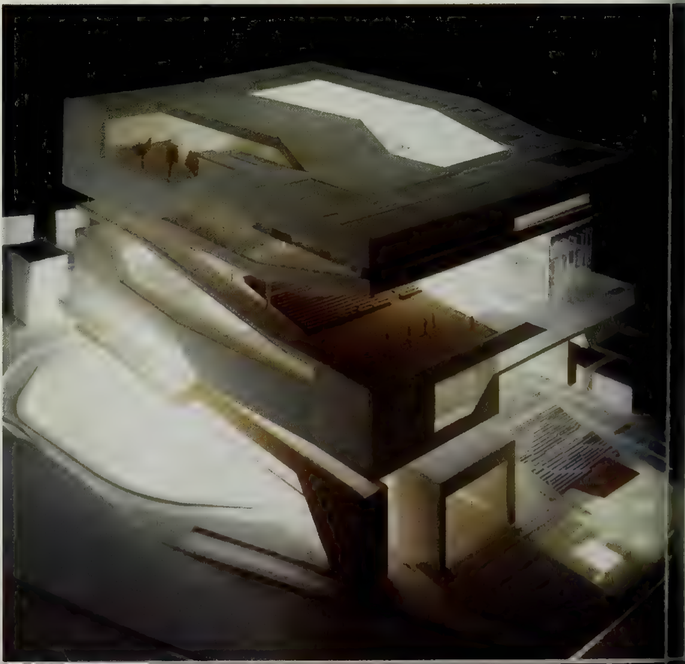


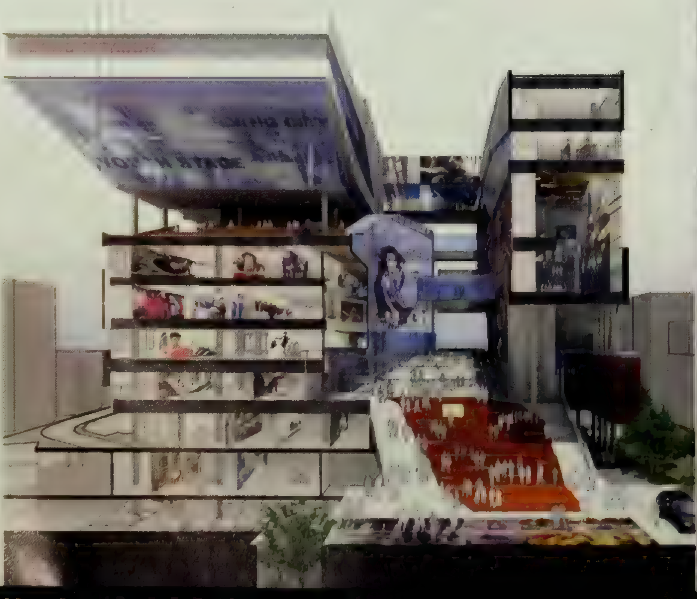
Gwangju Design Center, Gwangju, Korea

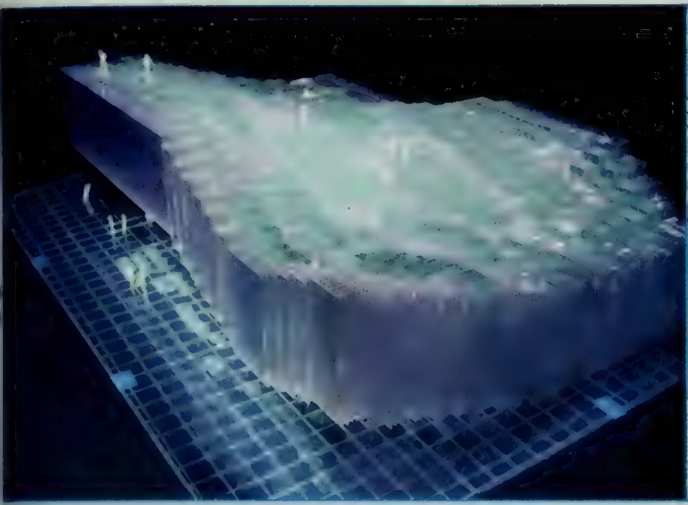
At a school and resource center for product design, angled cutaways in the facade are framed by broad exterior staircases where students gather. The firm's original design featured a variegated facade incorporating panels of glass, stone, aluminum, perforated metal, and CRC plastic. As built, the curtain wall dominates.

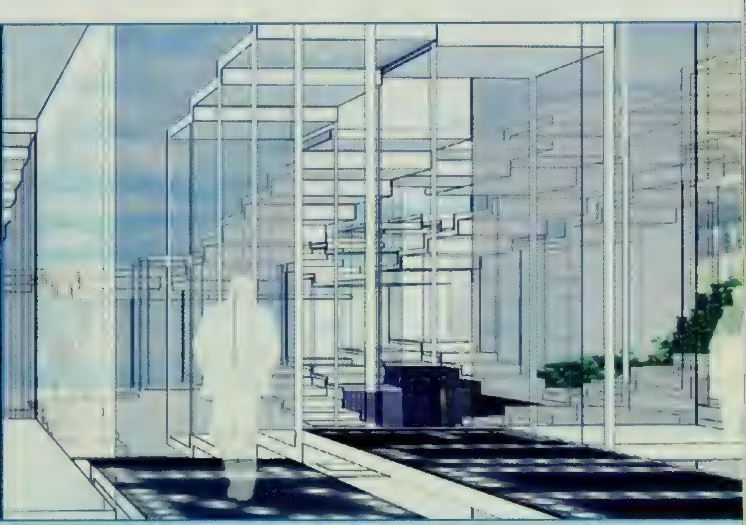
KTNG Culture Complex, Yongsan, Korea

"A floating city freed from the ground" was the jumping-off point for a new multicultural community center, say the architects. Incorporating retail, theater, clinical, educational, and office spaces, the building sits on a plaza that leads to a grand stairway linking the first three levels. Rooftop gardens accommodating sports and theatrical presentations are layered within the sculptural structure.



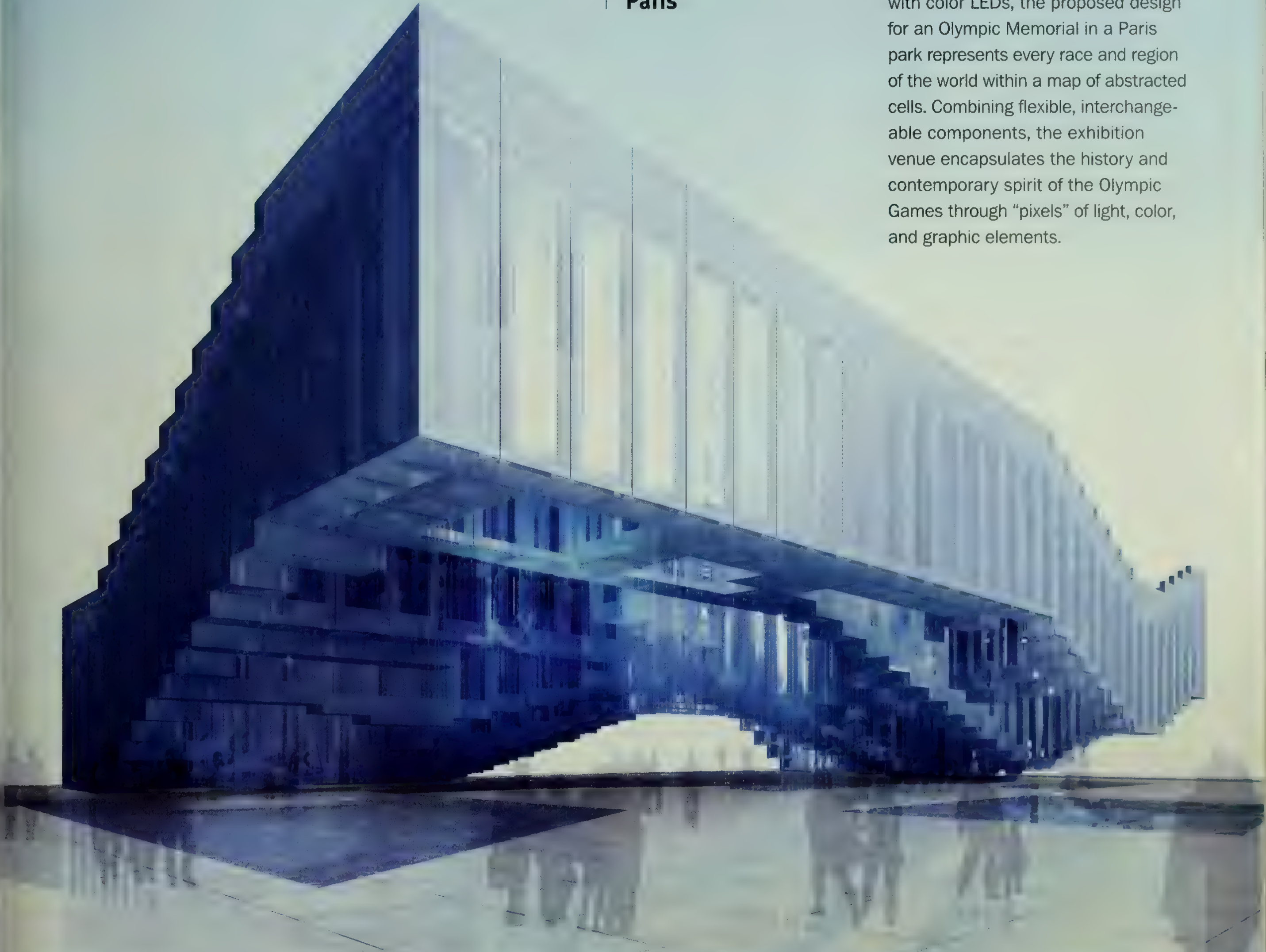






Olympic Memorial, Paris

Incorporating plastic walls threaded with color LEDs, the proposed design for an Olympic Memorial in a Paris park represents every race and region of the world within a map of abstracted cells. Combining flexible, interchangeable components, the exhibition venue encapsulates the history and contemporary spirit of the Olympic Games through "pixels" of light, color, and graphic elements.



Studio Luz sheds new, inventive light on the social potential of architecture

By David Sokol

Architect: Studio Luz Architects
Location: Boston
Founded: 2002
Design Staff: 5
Principals: Hansy Better Barraza and Anthony J. Piermarini, AIA
Education: Barraza: Harvard Design School, MAUD, 2000; Cornell University, B.Arch., 1997; Piermarini: Harvard Design School, M.Arch. II, 1999; Cornell University, B.Arch., 1997
Work history: Barraza: Practice—Office dA, 2000–02; Habitat for Humanity, 1999; Kennedy & Violich Architecture, 1998; Ricardo Bofill - Taller de Arquitectura, 1997; Academic—Rhode Island School of Design, 2002–present; Piermarini: Kennedy & Violich Architecture, 1998–2003; modA, 1998
Key completed projects: St. Martin Street Residence, Fitchburg, Mass., 2006; Diva Lounge, Somerville, Mass., 2006; Seiyo Sushi & Wine Shop, Boston, 2005; Kashmir Indian Bistro, Boston, 2005; W.O.W. Inc. boutique, Newton Highlands, Mass., 2004; Ombar Lounge, Boston, 2002; Harvard Mailslot System, Cambridge, Mass., 2000
Key current projects: Union Square Performance Space, Somerville, 2006–07; Acôté Salon, Miami Beach, Fla., 2007; Mela, Boston, 2006; Community Hill Development, Leicester, Mass., 2008–12; Hope for the Children of Haiti campus, Port-au-Prince, 2008–14
Web site: www.studioluz.net

It's a Friday night, and Diva Lounge is jumping. Friends converge around the rustic bar made of salvaged Vermont butternut wood and decorated with the random patterns of worm holes. First dates share Indian tapas as they marvel at the walls and ceilings entirely lined with illuminated panels that look like fat pillows. A bouncer checks IDs outside, where the club's exterior features the same glowing, bulging surface as the interior. Welcome to downtown Somerville, Massachusetts, where the Diva crowd is as sexy as the interior.

Steven Holl, Frank Gehry, Office dA: With big-name architects making new icons for the Boston skyline, the New England metropolis is loosening its buttons. But it may be under-the-radar architects like Studio Luz, the designers of Diva Lounge on the city's outskirts, that are changing the ways people interact with their environments and each other.

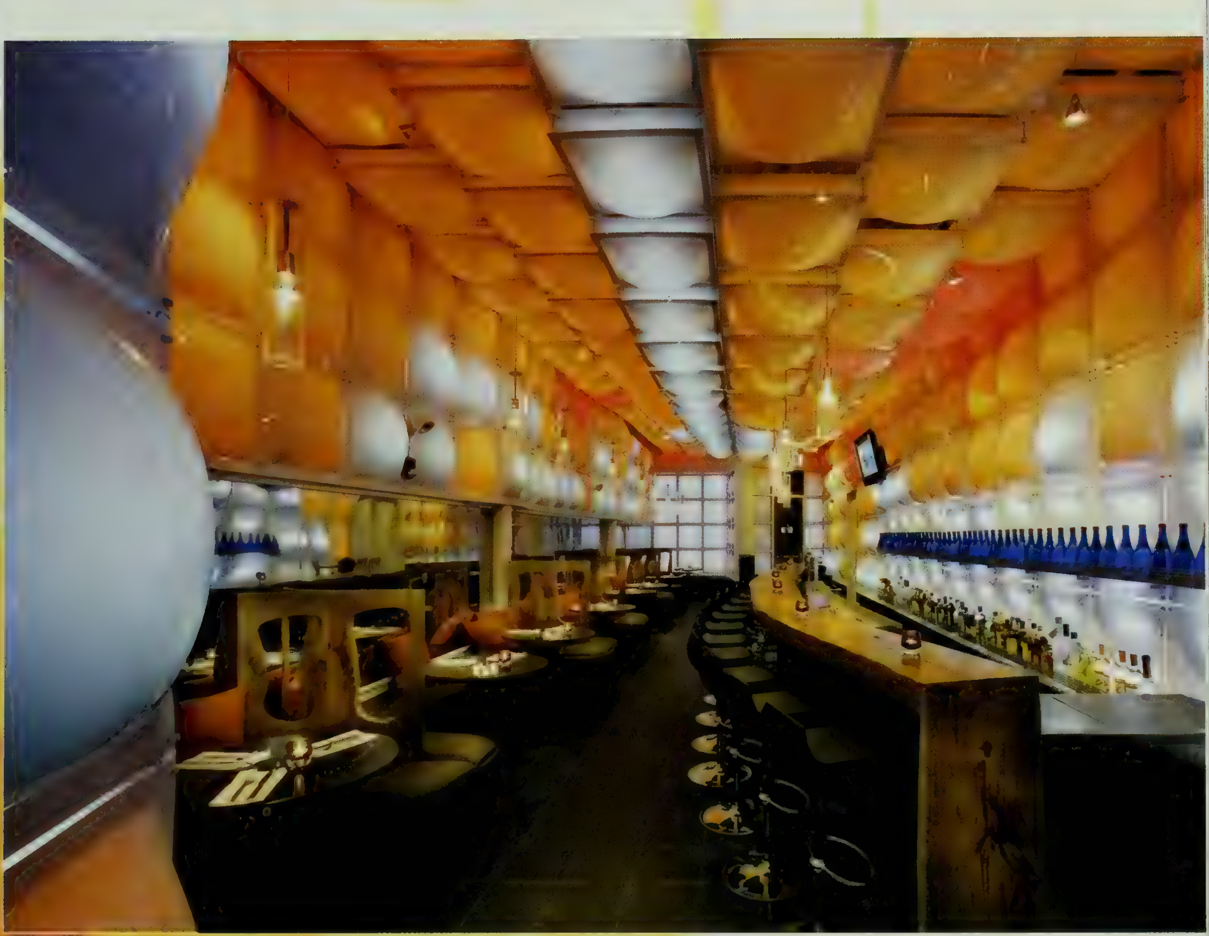
Indeed, interaction is fuel for Studio Luz principals Hansy Better Barraza and Anthony Piermarini, whose work negotiates experiences of community and introspection. Their Diva Lounge, for example, is a social facilitator. The butternut backrests of the banquettes are incised with the shape of a silhouette. The point, Barraza says, is for visitors literally to "rub shoulders." The long, narrow lounge terminates in three bathroom pods, the interiors of which are too small to contain anything but the essential plumbing. With surplus space allocated around the pods, queuing up is less annoyance and more friendly, multigender social activity.

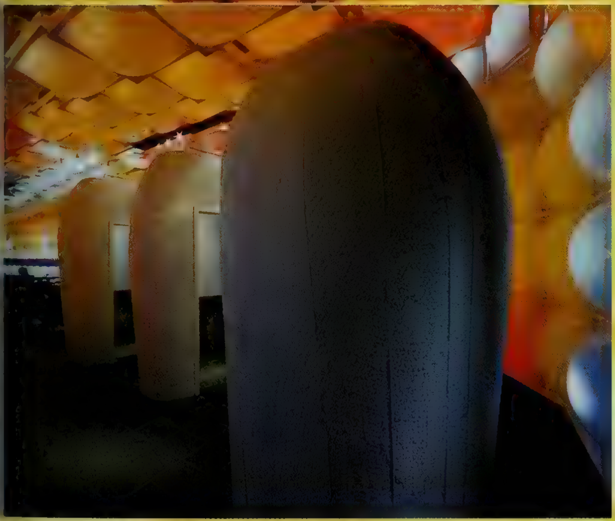
Conversely, exhibition installations diplaying the architects' work, such as *Terrain: Vulnerable Architecture*, at Drake University in Iowa, and *If... Then*, commissioned as part of The Architectural League's 2004 Young Architects Forum (YAF), foster intensely private moments. At the Drake show, images and collected artifacts were presented inside long chicken-wire cylinders mounted from quicktubes (cardboard forms used for pouring concrete footings), so that contemplating them meant disengaging with the wider gallery setting. For YAF, the architects clipped frosted acrylic elements looking like toy viewfinders, to a structure of interlinking steel brackets. Of the amorphous shape improvised on-site, Piermarini says, "*If... Then* was an open-ended question, so we wanted to create an open-ended armature."

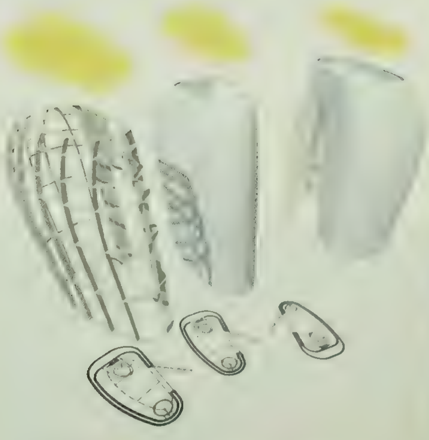
These projects also highlight how Studio Luz applies quotidian materials out of context and repeats them to abstraction. Diva Lounge's surfaces, for example, are actually common polycarbonate skylight bubbles. In the firm's fourth-floor workspace in South Boston, visitors glimpse future iterations of this theme. One model, for Boston's Union Square Performance Area, specifies seats made of 6-foot-long granite curb cuts that the city can later dismantle and reuse for sidewalks.

***If...Then* featured a cloudlike exhibition fixture.**

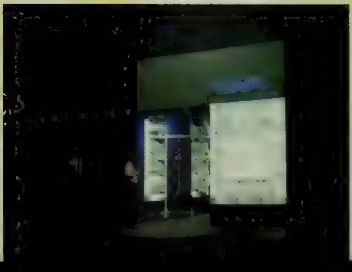
Piermarini notes the gritty circumstances of being a young architect, saying repetition-as-abstraction "is about making the design accessible. The reality is that many of our projects have very limited budgets." With a long track record of ingeniously responding to budgetary plight, one looks forward to the day when Studio Luz's resources are grander. ■







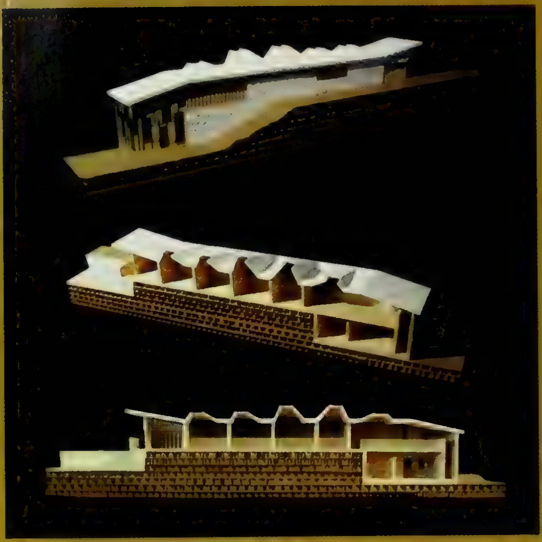
Diva Lounge, Somerville, Massachusetts

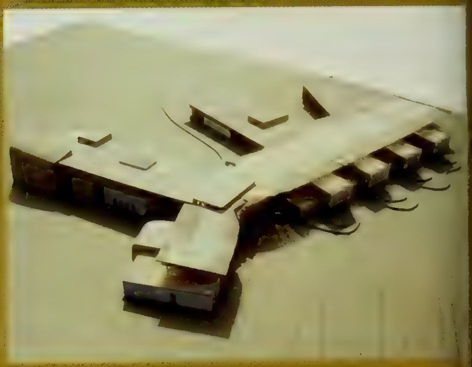


With Light This!, Studio Luz adapted 500 polycarbonate skylight bubbles into the pillowlike walls and ceiling of Diva Lounge; the bubbles are backlit by 10,000 preprogrammed LEDs. Barraza and Piermarini textured three bathroom pods by placing perforated rug pads on the exteriors before applying the finish coat of plaster. The pads were removed before the final layer of plaster hardened.

Hope for the Children of Haiti campus, Port-au-Prince, Haiti

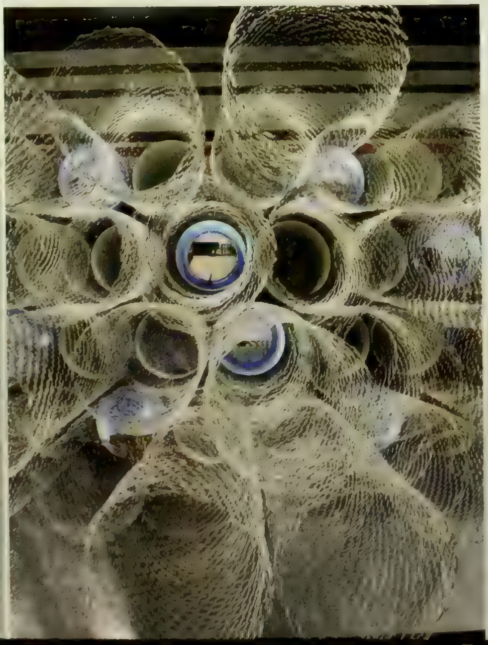
Although ground breaking won't take place until 2008, Studio Luz's pro bono master plan for Hope for the Children of Haiti has already been three years in the making. The 16-acre campus will include 100,000 square feet of livable building, with housing for 90 orphans (left), community school facilities (below and below left), and a medical clinic. To match the pace of donations, construction may happen in increments, beginning with infrastructural cores from which rooms are later appended.

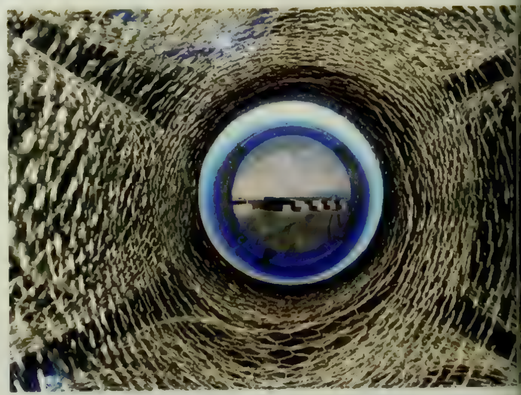


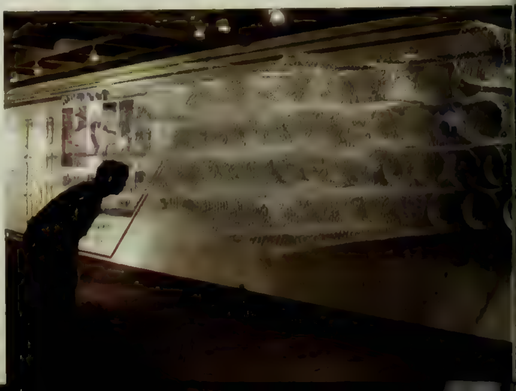


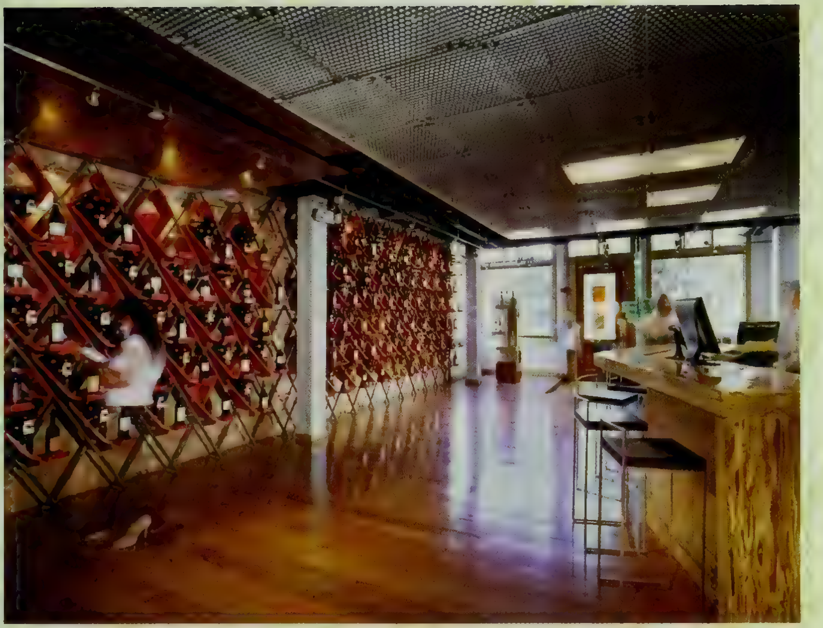
Terrain: Vulnerable Architecture, Drake University, Iowa

Studio Luz exhibited images of its campus design for the aid organization Hope for the Children of Haiti at the museum show *Terrain: Vulnerable Architecture*, held at Drake University, in Des Moines, in 2005. Displays were mounted inside chicken-wire mini-tunnels projecting from rows of quick-tubes. There are 61 tubes in total, representing the number of orphans currently under the care of the Haitian group, and their lengths correspond with each child's age.



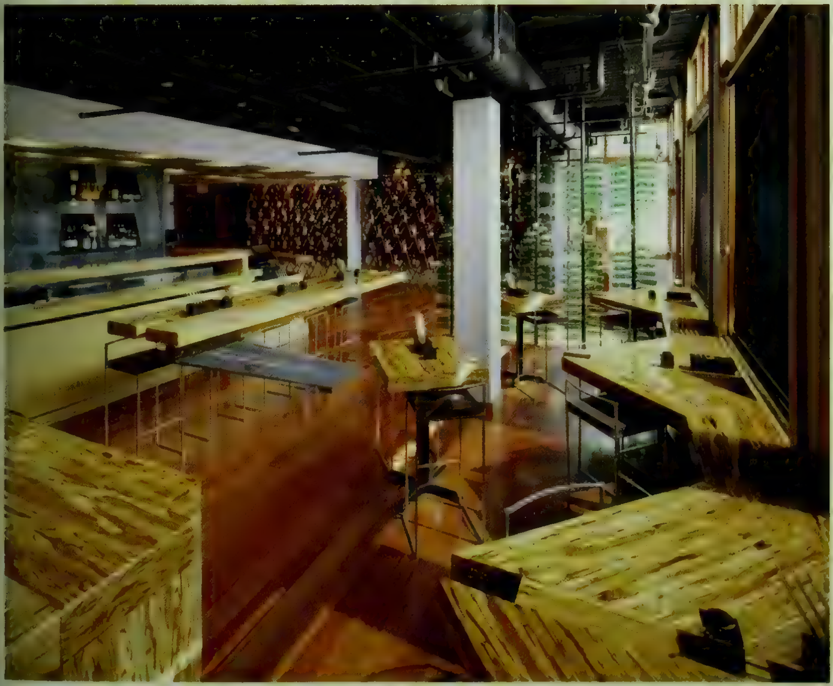


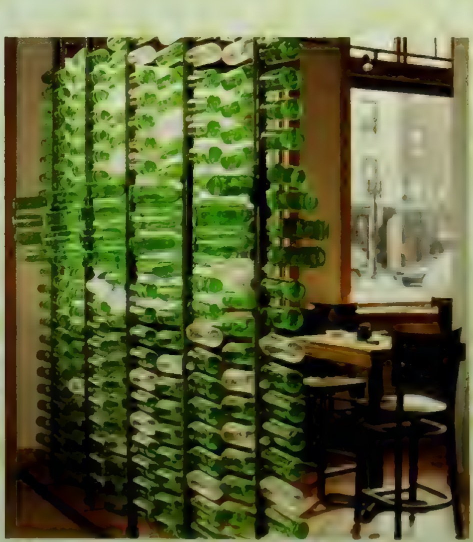




Seiyo Sushi & Wine Shop, Boston

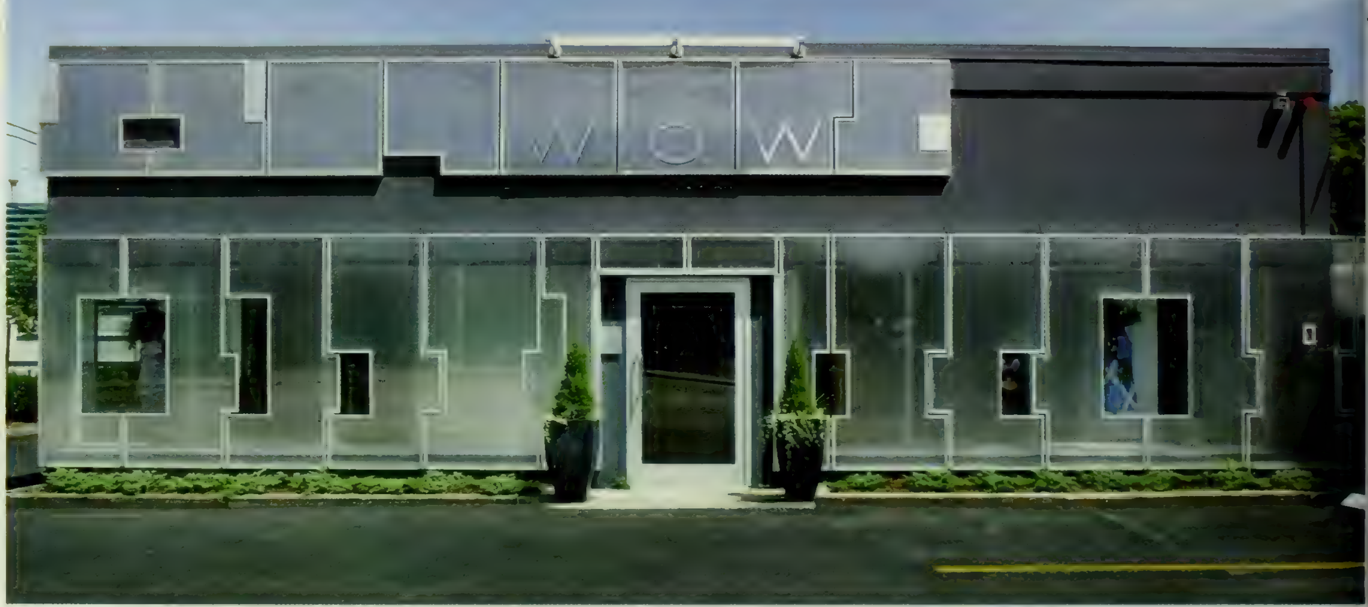
Echoing its multiple programs, the design for Seiyo comprises a series of quirky vignettes, such as a wall in which lacquered MDF storage units mimic the motion of a waiter holding out a bottle of wine (above left), a screen made of empty bottles extending from steel tubes (below), and dining tables that encourage more intimate seating arrangements (below left).





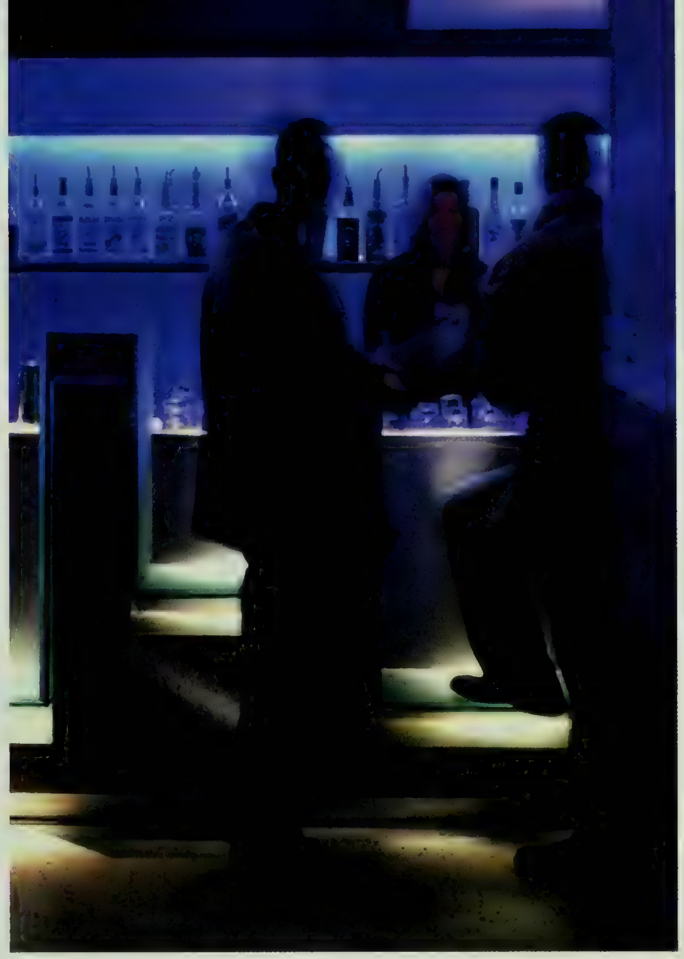
W.O.W. Inc., suburban Boston

Commissioned to create a new skin for the clothing store W.O.W. Inc., Studio Luz applied a ribbon of Polygal sheets in aluminum frames, which were varied with any of several predetermined notches. The notches were arranged as cutouts revealing the merchandise behind the windows. To honestly show their work as a second skin for the original Art Deco–era building, the architects pulled it away from the ve-[illegible] transforming it into a luminous beacon for the parking lot.



Harvard mailslots, Cambridge, Mass.

For Barraza and Piermarini, transforming everyday things into dynamic elements predates the establishment of Studio Luz in fall 2002. As graduate students at Harvard, the pair, with classmate Michael Cosmas, won a competition to design and fabricate a 40-foot-long wall of mailboxes for Harvard's M.Arch. students. A textured plane of trays cantilevers from a self-supporting waffle panel, all made of 12-gauge, cold-rolled steel—the cheapest variety, Barraza notes with a wink.



OmBar lounge at Mantra restaurant, Boston

Taking over a space that had also been used as a night spot, the owners of OmBar asked Studio Luz to fashion a reincarnation from the existing materials. Barraza and Piermarini shattered tempered glass from the old space, reusing it to accent terrazzo flooring and laminating it into sheets for the bar. The bar exemplifies the studio's approach to social contact: A monolithic surface was reimagined as podiums to encourage face-to-face contact (above).

The Dutch firm **BAR**, based in Rotterdam, brings a humanist approach to Modern design

By Tracy Metz

Architect: BAR (Bureau voor Architectuur Rotterdam)
Location: Rotterdam, the Netherlands
Founded: 1999
Design staff: 5
Principals: Joost Glissenaar and Klaas van der Molen
Education: Glissenaar: Academie van Bouwkunst Rotterdam, 1997; Van der Molen: Academie van Bouwkunst Rotterdam, 1996
Work history: Glissenaar: MVRDV, 1994–99; Sybrand Fukken, 1989–93; Van der Molen: Akropolis, 1996–99; Kraaijvanger/Urbis, 1995–96
Key completed projects: *Just In* exhibition, Netherlands Architecture Institute, Rotterdam, 2005; KEI office space, Rotterdam, 2005; Bridgehouse, Middelburg, 2004; Junky Hotel, Utrecht, 2004; Plantijn Casparie printshop, Utrecht, 2003; BAK center for contemporary arts, Utrecht, 2003
Key current projects: Krasinski Pavilion exhibition space, Warsaw, 2006; BNA interiors, Amsterdam, 2007; Kokerloods media center, Utrecht, 2007; Wijkwaard neighborhood center, Alkmaar, 2007; KLPD police stations, Assen and Maasbracht, 2008; Music House, Utrecht, 2008; Glauberweg apartments, Amsterdam, 2008
Web site: www.bararchitects.com

Tracy Metz, RECORD's Amsterdam-based correspondent, is currently a Loeb Fellow at Harvard University.

Can architecture be useless? The question is only half-rhetorical when posed by BAR, the Rotterdam-based architecture firm of Klaas van der Molen and Joost Glissenaar. The pair has repeatedly explored the purpose of architecture, and in particular the interaction between the building and its user. Look at its Bridgehouse for the southern Dutch town of Middelburg: useless! Only six times a year does anyone step inside to open the bridge; the rest of the time it is merely a transformer station. "We call it a folly in the water," says Glissenaar. But what could have been a boring technical facility has been designed by BAR as a piece of urban sculpture, making it "useful" in a new way to the surrounding city.

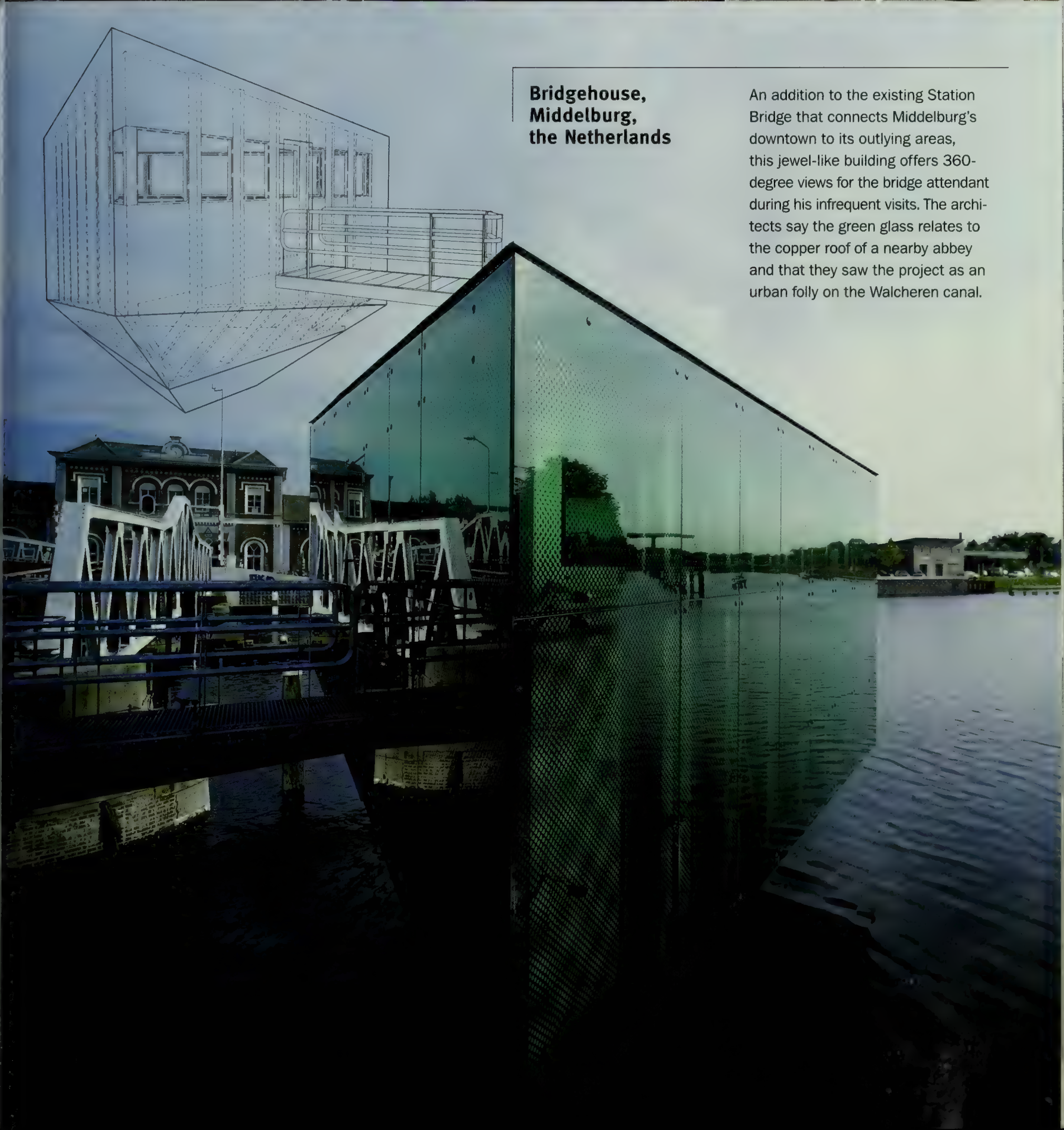
Glissenaar and Van der Molen, who have known each other since architecture school, set up shop in 1999 as BAR (Bureau voor Architectuur Rotterdam) after winning first prize in Europan, a European-wide competition for young talent. (Their design has yet to be realized, to their chagrin.) One of their best-known designs so far is a building for the printer Plantijn Casparie on an old industrial waterway. It presents itself to the passerby as a long, crisp wall of double-height glass panes between 18-foot-high wooden supports. Behind this facade, the building extends as a series of three linked boxes, from a transparent front office to a printing shop in the middle and a binding, storage, and shipping facility in the back. Glissenaar says, "The processes that unfold inside are a kind of hidden treasure from which we derive the exterior."

On one of the most exclusive streets in the historic center of Utrecht, BAR designed a project with a uniquely Dutch social agenda: a hostel for aging junkies. In a landmark building from 1910, the architects created living quarters for 28 homeless, hard-drug addicts, with a communal living room and kitchen. At the core of the deep building, the architects clad walls in formica sheets imprinted with an almost three-dimensional image of juicy green ivy, adding at least the suggestion of a whiff of fresh air.

Contrasting old shell and new interior was a key part of BAR's first commission: a contemporary arts center called BAK, also in Utrecht. Here it inserted a plane of perforated-metal stair treads 6 feet behind an old facade, dating from 1650. "We created a vertical foyer of perforated metal and glass floors that articulates the transition between old and new," explains Van der Molen. "It is, in fact, one continuous space spread over three stories, containing a library, a reception area, and a gathering space."

Dutch architecture captured the public's eye in the 1990s with its daring approach to form and program. Now, however, Dutch clients are more inclined to play it safe. This is especially true of housing, long a playground for young architects but now largely market-driven and neotraditional in style. "Young firms have little presence in the developers' world," says Glissenaar. "We're more at home in the world of government and culture, and we're cheaper and more patient than the big offices."

With its emphasis on the user's experience, BAR finds itself moving in the direction of postwar Dutch luminaries like Herman Hertzberger and Aldo van Eyck, who took an intensely humanist approach to the built environment. Young though it is, BAR is grabbing attention by wrapping its predecessors' social sensibility in unapologetically strong and confident forms. ■

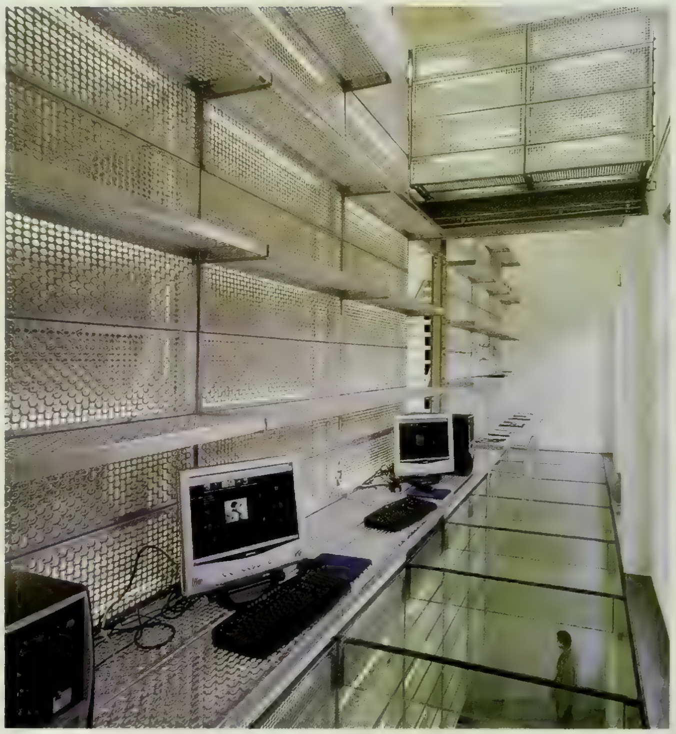


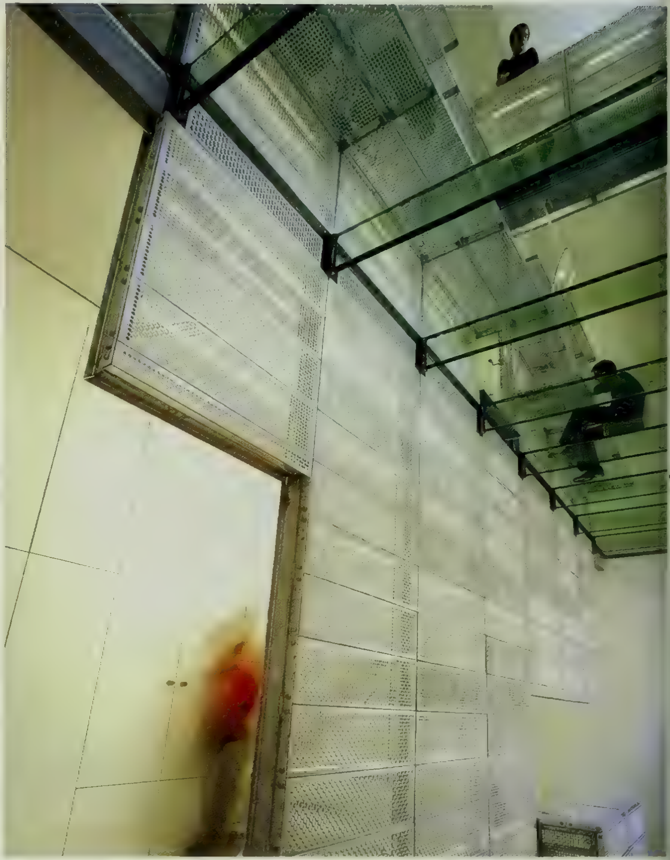
Bridgehouse, Middelburg, the Netherlands

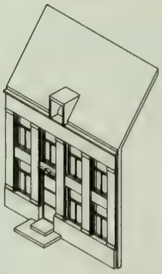
An addition to the existing Station Bridge that connects Middelburg's downtown to its outlying areas, this jewel-like building offers 360-degree views for the bridge attendant during his infrequent visits. The architects say the green glass relates to the copper roof of a nearby abbey and that they saw the project as an urban folly on the Walcheren canal.

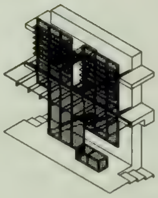
BAK, Utrecht

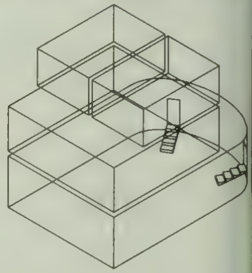
Set within the shell of a 17th-century building in the historic center of Utrecht, the BAK contemporary arts center initiates a lively dialogue between old and new. The architects inserted a 28-foot-high, glass-and-galvanized-steel element behind the old facade, creating space for service functions. Stairs, toilets, reception area, pantry, library, and storage space are all integrated into the new element. Glass floors allow visitors to appreciate the full height of the modern insertion.





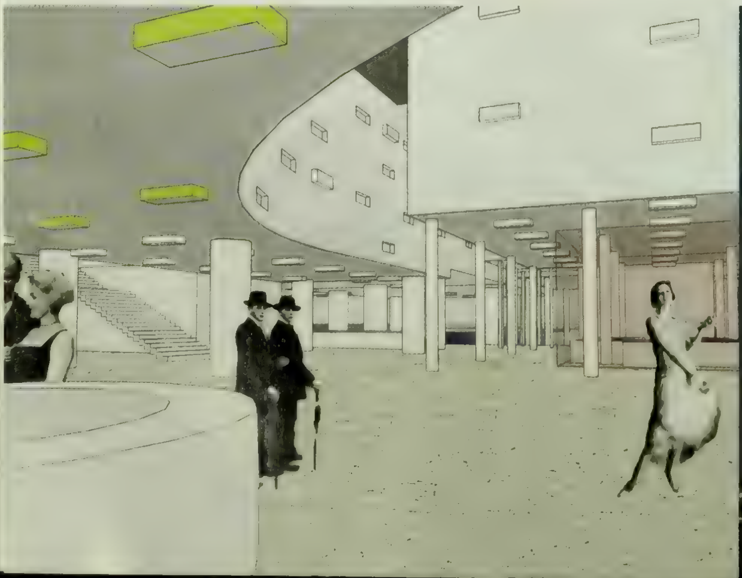


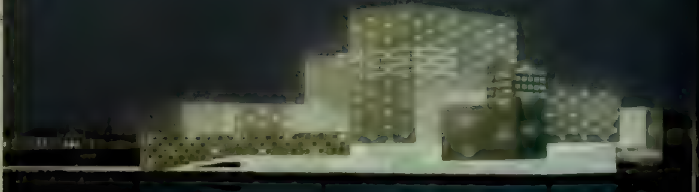




Royal Theater, Copenhagen, Denmark

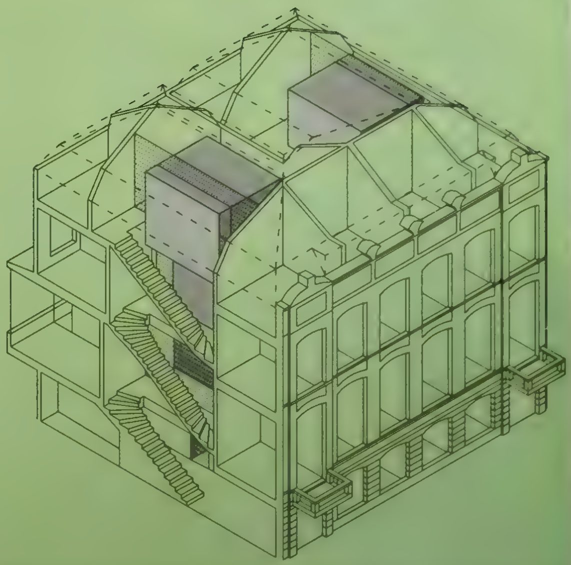
In this competition entry, BAR treated the foyer of the theater as a giant public space—wrapped in glass on four sides and flowing out onto a pier at the end of Kvaesthusbroen on Copenhagen's harbor. Stainless-steel boxes house two theaters and are perforated to allow light and air inside and create a lantern effect at night.





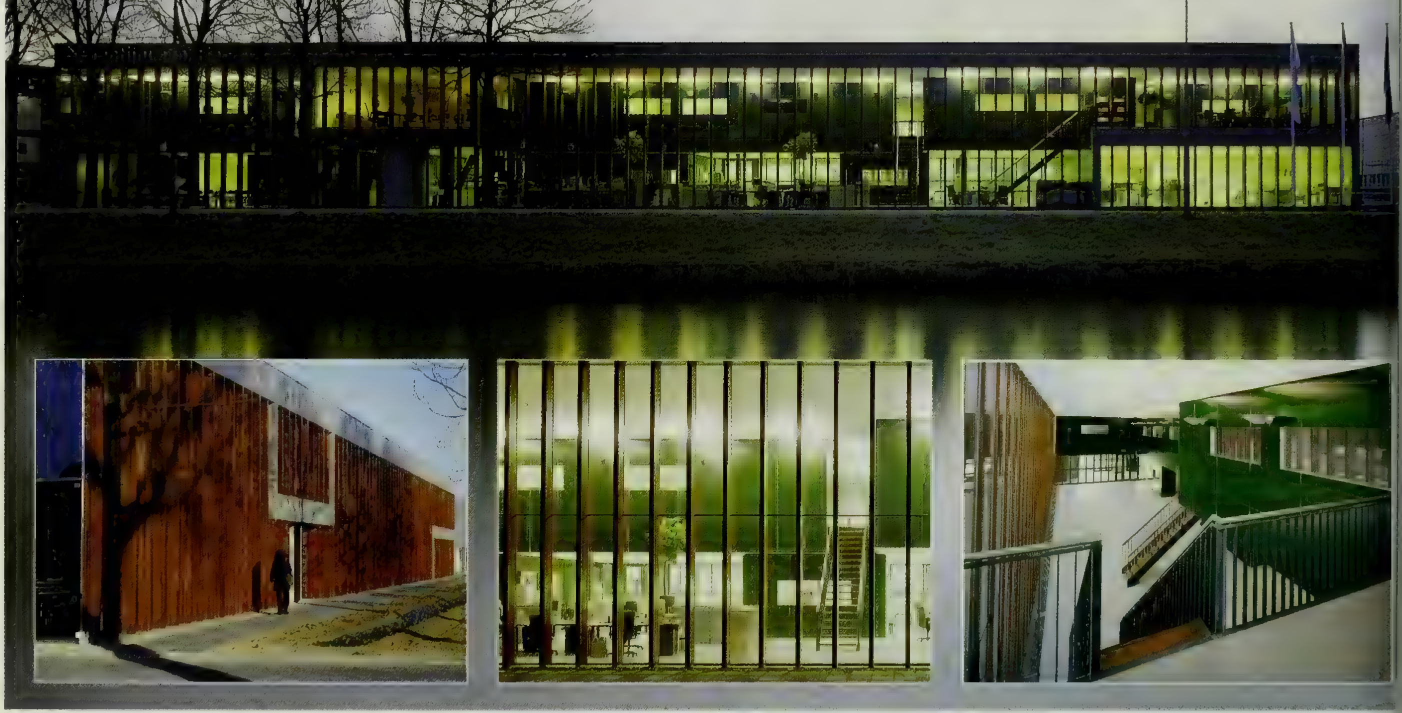
Junky Hotel, Utrecht

This adaptive-reuse project provides housing for 28 homeless hard-drug users while helping them start the process of reintegrating with the rest of society. The residents live in private rooms but share use of a communal living room and dining area. BAR placed reception, administration, meeting rooms, kitchen, and a doctor's office along the front facade, while organizing residents' rooms in two blocks—in the front and back of the building—with service modules in between.



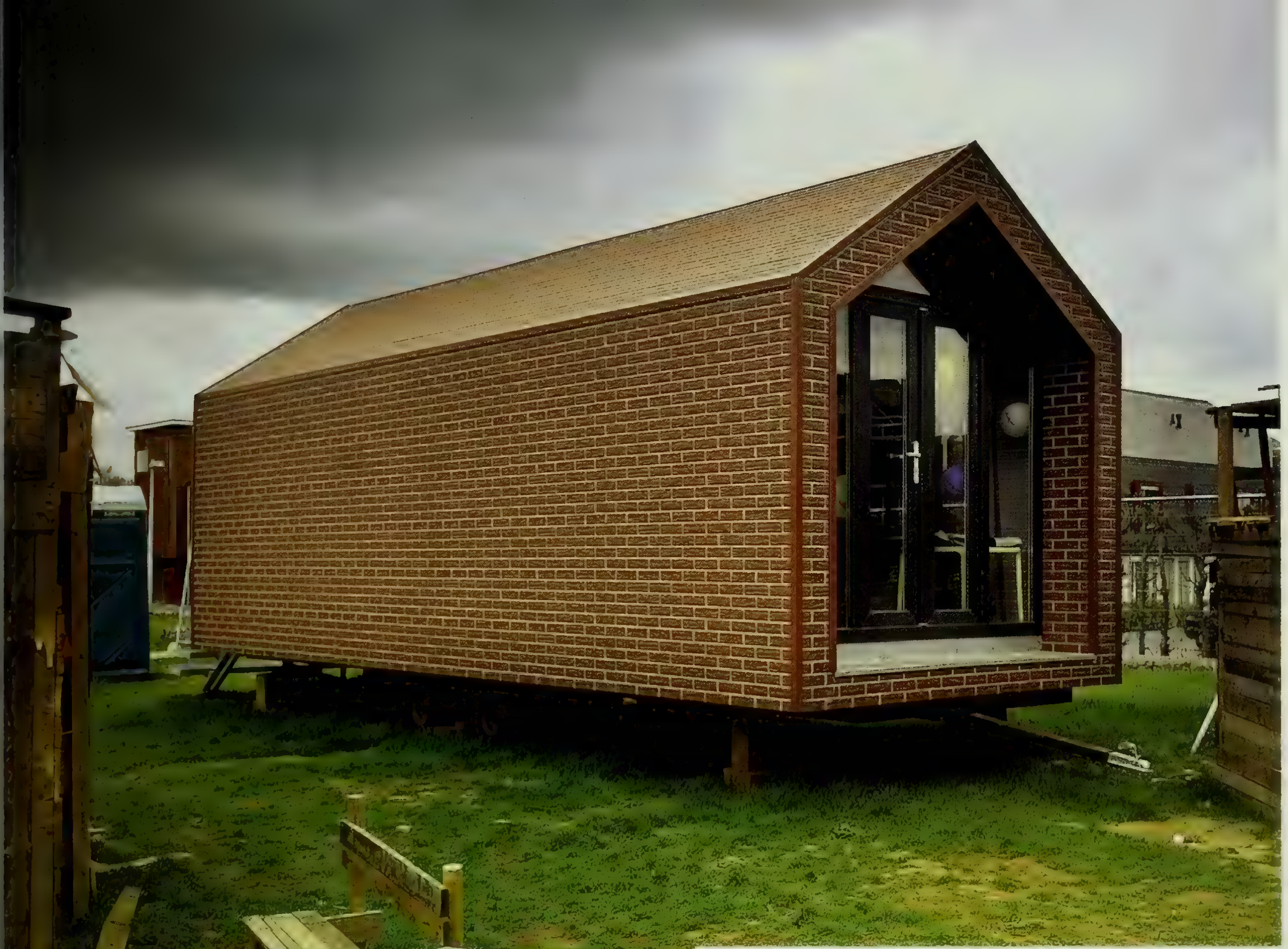
Plantijn Casparie, Utrecht

BAR designed this facility for a printing company as a series of two-story boxes, one behind the other. On its public front, along a canal, the architects placed offices and studios, then set the print shop in its own box, and finally the binding and distribution area. A row of 80 wooden columns on the canal facade support the roof, act as mullions, and provide sun protection.

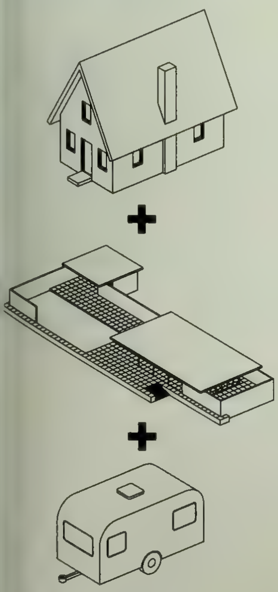


From City to Chair, Netherlands Architecture Institute, Rotterdam

Asked to design "a living room of the future" for an exhibition at the NAi, BAR created an installation with chairs of different heights surrounded by a mirrored skin. The design raises a series of questions: Is it inside or outside? Is it limited or unlimited? Is it a living room or a public square? Is it convivial or abstract? Is it furniture or a city?



Mies-Meets-Granpré mobile, Utrecht



This mobile meeting space for the new town of Leidsche Rijn in Utrecht combines irony with practicality. A comment on the struggle between Modernism and traditional design (represented by the Dutch architect Marinus Jan Granpré Molière, who died in 1972), the little structure has a polyester skin decorated with imitation bricks and can be delivered to the site on a standard trailer chassis.

Studio SUMO eschews signatures by approaching every project inquisitively

By David Sokol

Architect: Studio SUMO
Location: Long Island City, N.Y.
Founded: 1996
Design Staff: 5
Principals: Sunil Bald and Yolande Daniels
Education: Bald: Columbia GSAPP, M.Arch., 1991; University of California Santa Cruz, B.A. biology, 1986; Daniels: Columbia GSAPP, M.Arch., 1990; The City College of New York, CUNY, B.S. Arch., 1987
Work history: Bald: Practice—Pasanella + Klein Stolzman + Berg, 1995–96; Gaetano Pesce Ltd., 1994; Antoine Predock Architect, 1991–94; Academic—Yale University, 2006; Parsons The New School of Design, 2000–present; Daniels: Ralph Appelbaum Associates, 1996–98; Selldorf Architects, 1993–95; Smith-Miller + Hawkinson Architects, 1991–93; Gaetano Pesce Ltd., 1991; Academic—Columbia GSAPP, 2000–present
Key completed projects: Josai School of Management, Sakado, Japan, 2006; Museum of Contemporary African Diasporan Art, Brooklyn, N.Y., 2006; MiniMax prefabricated housing prototype, 2005; *Urban Life* exhibition design, Urban Center, New York City, 2003; Museum for African Art, Long Island City, N.Y., 2002; *Intimate Landscapes* installation, Project Row Houses, Houston, 2002; *NewNewYork2* exhibition design, Urban Center, 2001; Flip/Flop live/work prototype, New York, 1998; Femme Pissoire female urinal prototype, 1997
Key current projects: *de facto/de jure* installation, Amtrak Crescent Line, 2006; Mizuta Museum of Art, Sakado, Japan, 2007; Brant Artist Studio, Bennington, Vt., 2007; Mitan Housing, Little Haiti, Miami, 2008
Web site: www.studiosumo.com

Names can be deceiving. Studio SUMO, a decade-old practice based in Long Island City, New York, does not represent founders Sunil Bald's and Yolande Daniels's ethnicities, nor an interest in an exotic sport. (Sumo is a combination of Sunil, and Daniels's nickname in grad school, Momo.) But if SUMO were to signify anything related to Japanese wrestling, it would be heft—of the cerebral kind. Bald teaches at Parsons and Yale, and Daniels at Columbia, and as Daniels says, "We begin with a question, searching not necessarily for answers, but for something." Bald adds that projects "don't necessarily have a predestined physical manifestation."

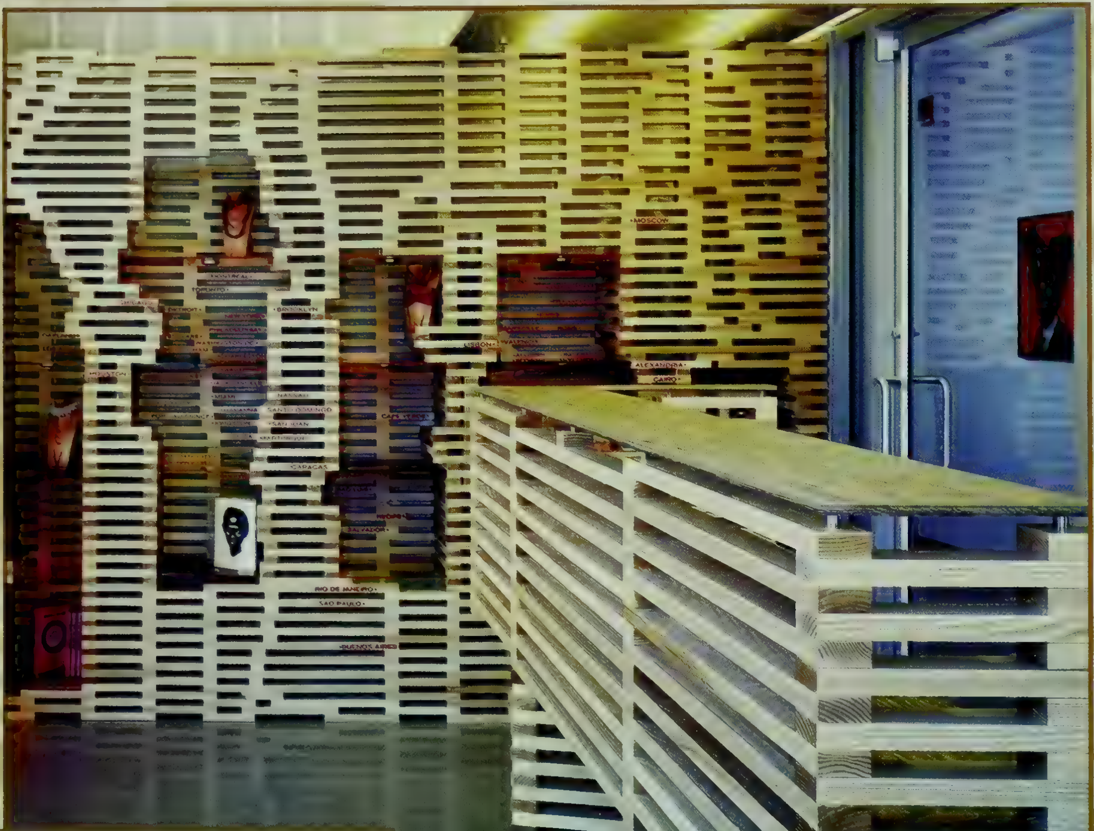
Designs for Josai University in Japan exemplify this tabula rasa approach. In 2000, Bald and Daniels were commissioned to design a pair of information buildings for the university's Togane campus. One, for students, was to be located on a pedestrian route to a nearby train station. The partners devised a program according to the train schedule: A vending machine would occupy the student waiting for just a few minutes, and a magazine stand, laptop stand, and rooftop garden were meant for more patient scholar-commuters. For the second building, a 4,500-square-foot visitors' pavilion planned for the other side of the campus, they drew inspiration from the site's bypass-road location. Referring to the bright lights and quick thrills of nearby used-car dealerships and pachinko parlors, this design included a drive-through component as well as a scrimlike facade that, illuminated internally, acted as an abstract billboard.

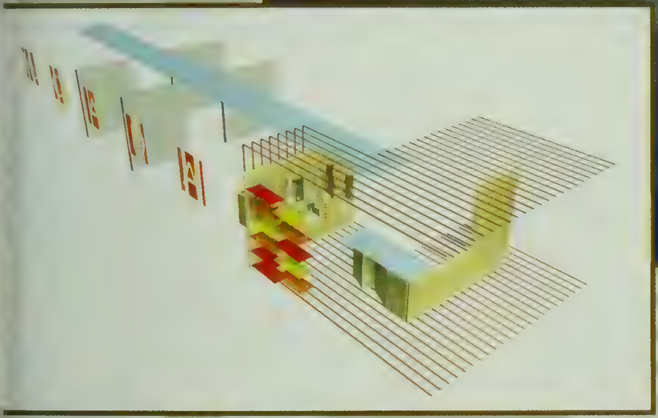
Although the so-called Info/Info structures stalled, three years later Josai tapped SUMO for a 70,000-square-foot school of management on its Sakado campus. That project looks nothing like a super-size reiteration of the earlier works. Instead, the designers single-loaded the classrooms into a folded, 600-foot-long structure, and lifted it to allow a public path to run underneath. Besides exercises in individuality, the Josai series shows SUMO's comfort with a range of scales. Indeed, in about the same period the Sakado building was designed and built, so was the Museum of Contemporary African Diasporan Art, an 1,800-square-foot interior in Brooklyn.

Loose connections abound through the portfolio. Formally, the Sakado project hints at a winning design in an affordable-housing competition in Miami—even though the latter's floor plans are based on shotgun and Creole manor houses. And the 2005 MiniMax prefabricated housing prototype hints at the total-design aspirations of Flip/Flop, featuring Murphy-like zones for different live/work functions that Bald and Daniels developed for themselves seven years earlier [RECORD, September 1999, page 105]. The legacies aren't direct, but can be teased out.

In 2001, Bald was invited to present work at a faculty exhibition, for which he and Daniels chose to organize designs not by type or chronology, but by matching projects to descriptive words that feature the abbreviations in the periodic table of elements. "[In] this kind of grid, things relate by their proximity and reference other elements potentially," Bald says. It's a fitting representation for two talents who rigorously investigate architectural solutions, but for whom many streams of consciousness will take them almost anywhere. ■

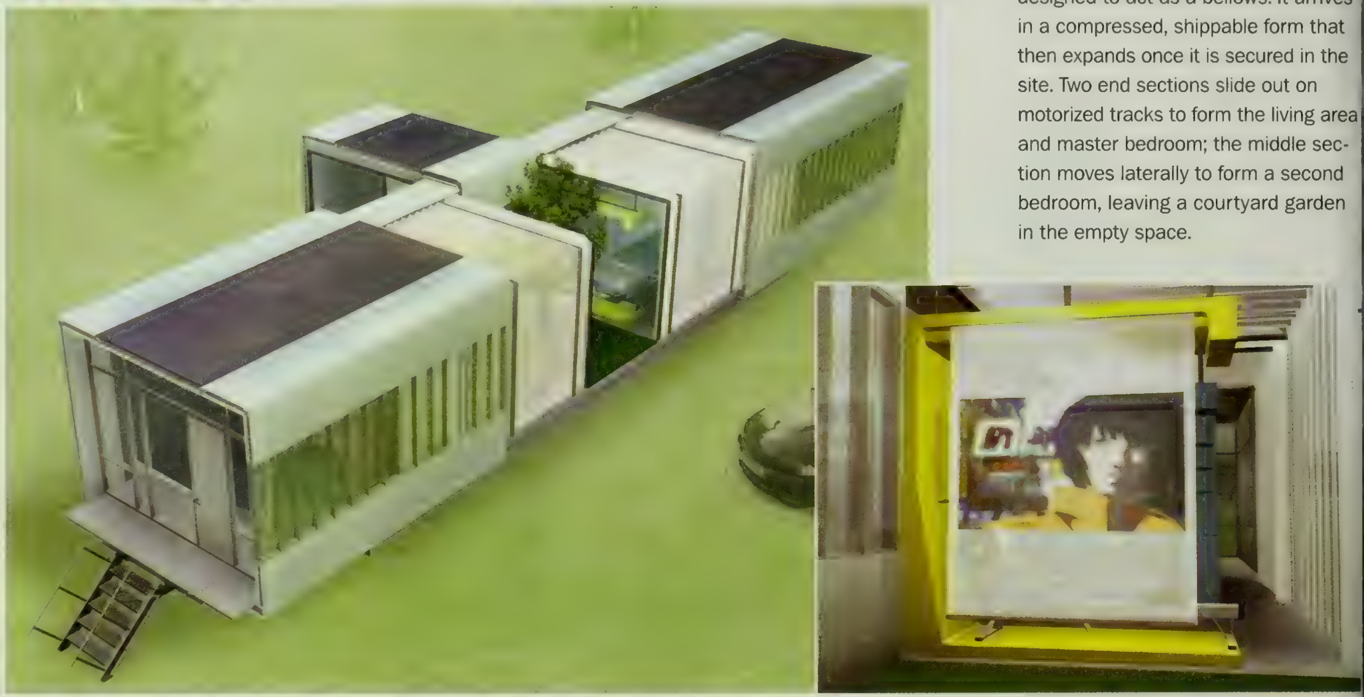
Seven armature units displayed *NewNewYork2*.





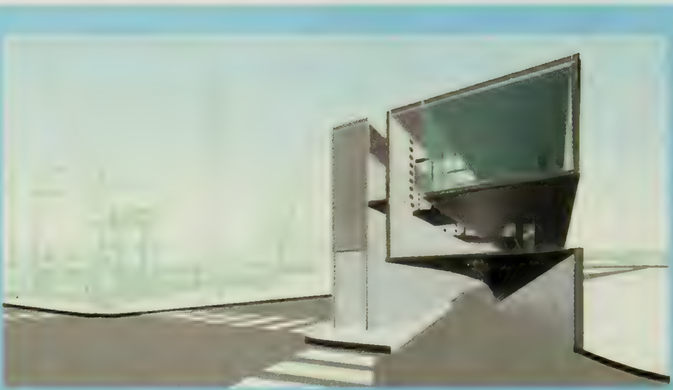
Museum of Contemporary African Diasporan Art, Brooklyn, N.Y.

The first public art institution to open in the BAM Cultural District in Brooklyn, this museum dedicated to contemporary African-American and Caribbean artists is housed in the base of a renovated office building. Studio SUMO applied the museum's acronym, MoCADA, to existing windows (right), and transformed the reception area into a giant sculptural map in which stacks of wood represent the world's 24 time zones and text cites places that figured prominently in African migration (above).



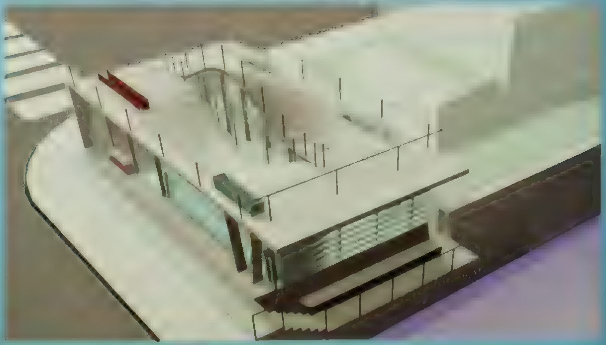
MiniMax prefab home prototype, City Design Center, Chicago

Although SUMO developed MiniMax as a concept for a City Design Center exhibition, the team is hoping to bring it to fruition. The prefabricated home is designed to act as a bellows: It arrives in a compressed, shippable form that then expands once it is secured in the site. Two end sections slide out on motorized tracks to form the living area and master bedroom; the middle section moves laterally to form a second bedroom, leaving a courtyard garden in the empty space.



Info/Info, Josai International University, Togane, Japan

This pair of information buildings was designed for one of Josai University's three campuses. The larger Bypass Building (above) riffs off its bypass-road location. Canal Building (right and above right) measures one third the size and includes activity zones for students who are waiting for the train. Both feature significant outdoor public space—a drive-through component and rooftop garden, respectively.



Josai School of Management, Sakado, Japan

This new building was SUMO's first opportunity to shoulder landscaping responsibilities. The crossover is evidenced in a pattern of bands that appears in exterior pavers, carpeting, wood decking, and ceilings. While clear glass clads the single-loaded corridor structure (below right), inside, randomly arranged channel glass prevents students from becoming distracted by activity across the atrium (below).

Kumiko Inui shows that her design talents reach farther than skin deep

By Naomi R. Pollock, AIA

Architect: Office of Kumiko Inui
Location: Tokyo, Japan
Founded: 2000
Design staff: 6
Principal: Kumiko Inui
Education: Yale University, M.A., 1996; Tokyo National University of Fine Arts and Music, B.A., 1992
Work history: Practice—Jun Aoki & Associates, 1996–2000; Academic—Showa Women's University, lecturer, 2006–present; Kyoto Zokei University, lecturer, 2001–02; Tokyo National University of Fine Arts and Music, teaching associate, 2000–01
Key completed projects: Komatsu Clinique, Osaka, 2006; Louis Vuitton Taipei Building, Taipei, Taiwan, 2006; Jurgen Lehl Shinsaibashi, Osaka, 2005; Louis Vuitton Osaka Hilton, Osaka, 2004; Shin-Yatsushiro Monument, Yatsushiro, 2004; Dior Ginza, Tokyo, 2004; Jurgen Lehl Marunouchi, Tokyo, 2003; Meleze Gotemba, Shizuoka, 2003; Louis Vuitton, Kochi, 2003; Kataokadai Kindergarten, Kitakatsuragi, 2001
Key current projects: JLHM House, Tokyo, 2007; Hiroo Apartment, Tokyo, 2007
Web site: www.inuiuni.com

Naomi R. Pollock is RECORD'S *special international correspondent based in Tokyo and the author of* Modern Japanese House, *published by Phaidon in 2005.*

Like many young architects, Kumiko Inui launched her career designing bits and pieces of buildings. But instead of churning out bathroom additions and bedroom suites, Inui made her name with eye-catching facades for luxury-brand boutiques. This comes as no great surprise since she apprenticed with Jun Aoki, Japan's king of high-end retail designers, after studying at Yale and Tokyo's National University of Fine Arts and Music. "I didn't really consider going to graduate school in Japan," says Inui. "At most Japanese universities, students study under one professor, but at Yale I had exposure to lots of different teachers."

Similarly, part of the appeal of working for Aoki was the unconventional way he runs his practice. Instead of relying on an office manger to oversee projects, he entrusts his staff architects with every part of the design and construction process. For Inui, this meant supervising the Snow Foundation in Niigata Prefecture and c, a tiny house on the outskirts of Tokyo, among other projects. But Aoki has a strict policy of requiring designers to leave his employ after four years.

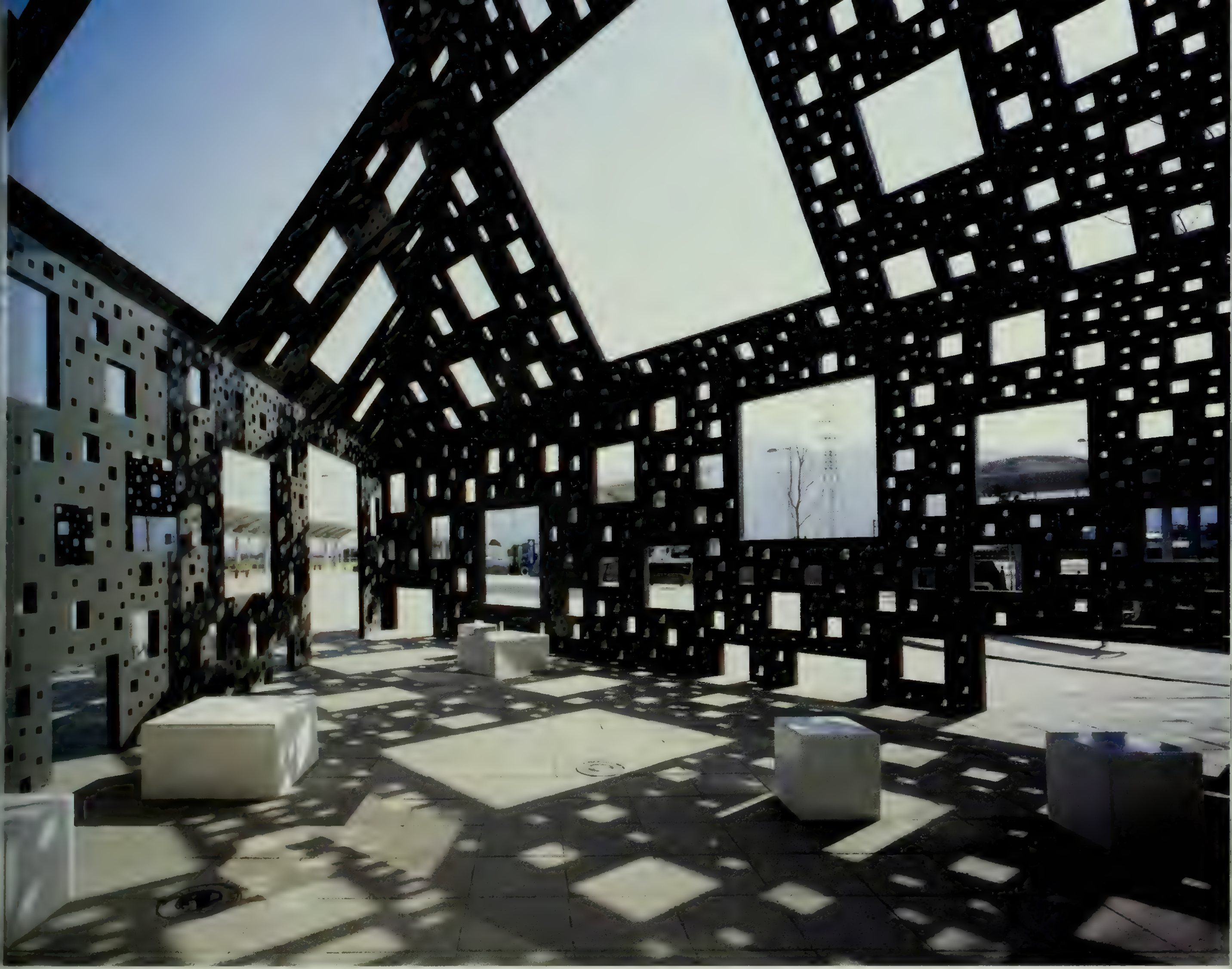
"Four years isn't enough time to learn all aspects of architecture, but at the same time, I was ready," says Inui. Fortunately, she had a forgiving first client: a preschool director who happened to be her grandmother. To perk up the school's outdated building, Inui inserted vertical strips of glass into its solid exterior wall and painted horizontal, colored stripes on its interior surfaces. The strips and stripes create a crosshatch pattern that evokes the gingham uniforms sported by many Japanese students.

She used paint again as her medium in a boutique for clothing designer Jurgen Lehl—coating the walls, floors, and ceilings of each of the shop's five rooms with a different one of Lehl's favorite pigments. The soft hues gradually transition from one space to the next, making each one appear filled with tinted light without distorting the products' true colors.

Inui is perhaps best known for her facades—each one a visua pun or optical illusion. She made the elevation for Dior in Ginza out of two overlapping sheets of aluminum, dotting the outer layer with perforations so they replicate the woven pattern of Thonet's famous chair that Christian Dior adapted as his signature motif. Her first stand-alone structure was a pavilion for the town of Shin Yatsushiro in Kumamoto Prefecture. Shaped like a cute, pitched-roof house, it stands in front of a new train station and functions as a waiting area for travelers. Approached from all four sides, the pavilion is an assemblage of flat, semipermeable facades that add up to a 3D composition. Each wall, as well as the roof is a glass-reinforced concrete plane punctured with square holes. "If it's raining, you still need an umbrella," laughs Inui.

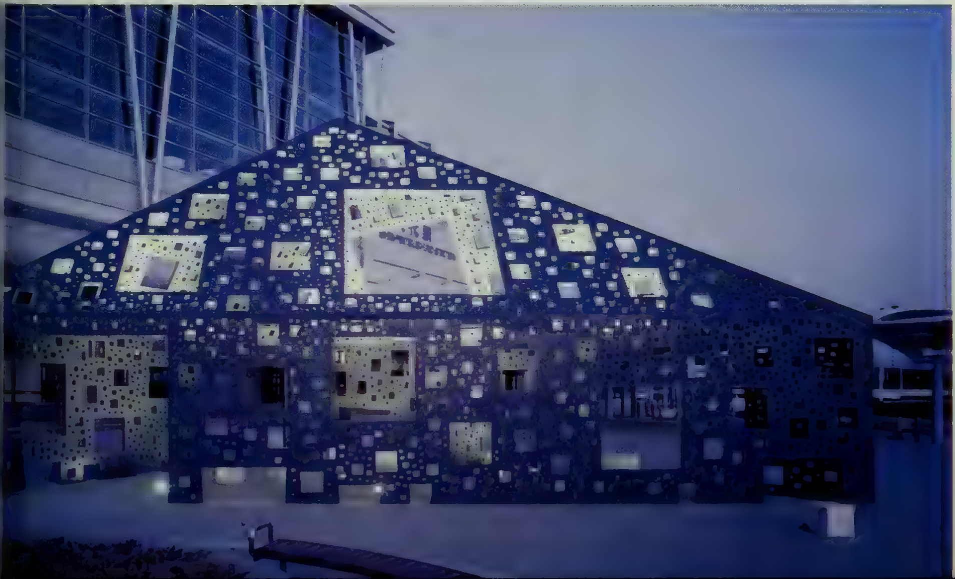
Today Inui has plenty of bona fide buildings on her boards, including an apartment building scaled like a house and a house divided into tiny rooms like an apartment building. So even as her projects grow bigger and more substantial, whimsy and clever artifice—ideas she perfected by designing building parts—remain strong currents in her work. ■

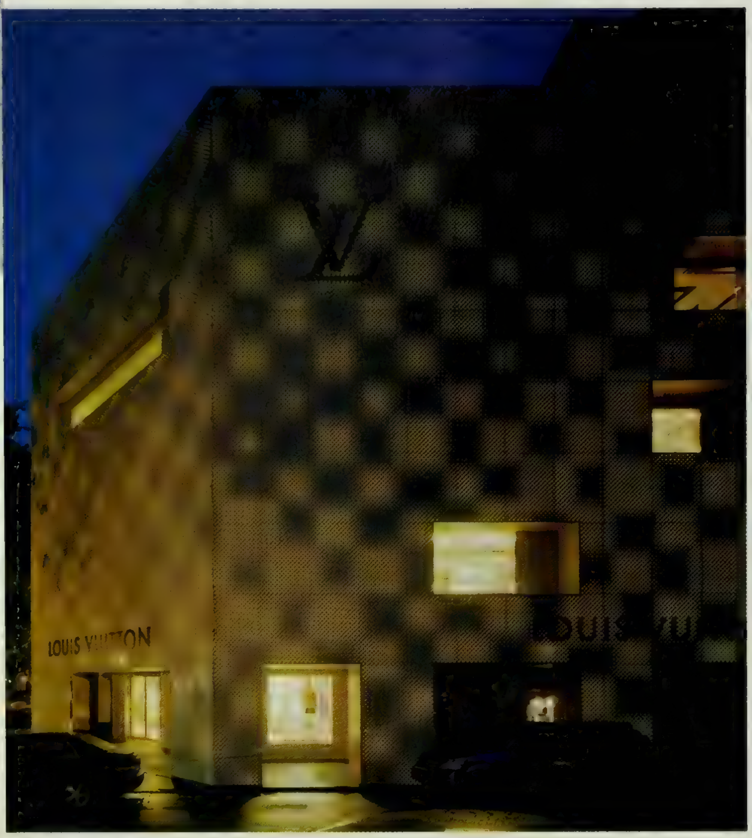
The Meleze Gotemba boutique plays games with light.



Shin-Yatsushiro Monument, Yatsushiro, Japan

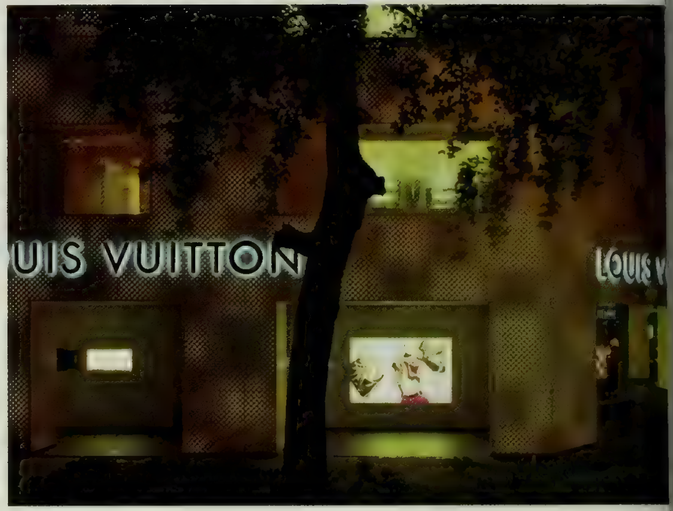
Built to celebrate the new bullet-train station in front of which it stands, this pavilion in Kumamoto Prefecture serves as a waiting area for travelers. From a distance, the pavilion recalls a typical house as drawn by a child. But as visitors get closer, the building seems to dematerialize, thanks to a blizzard of openings cut into the glass-reinforced concrete walls and roof.





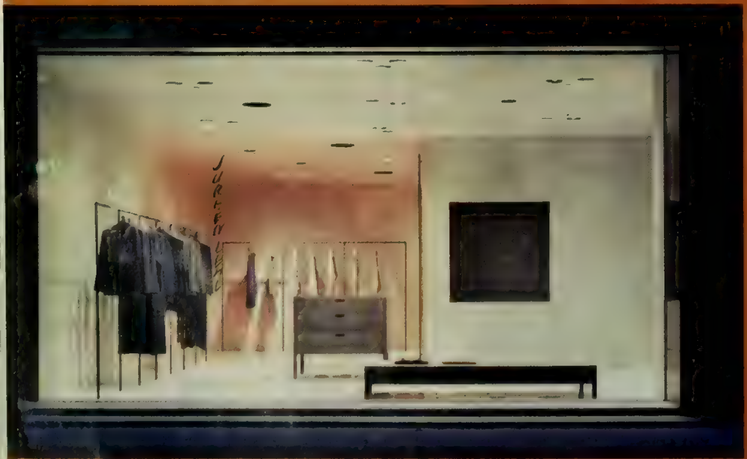
Louis Vuitton, Taipei, Taiwan

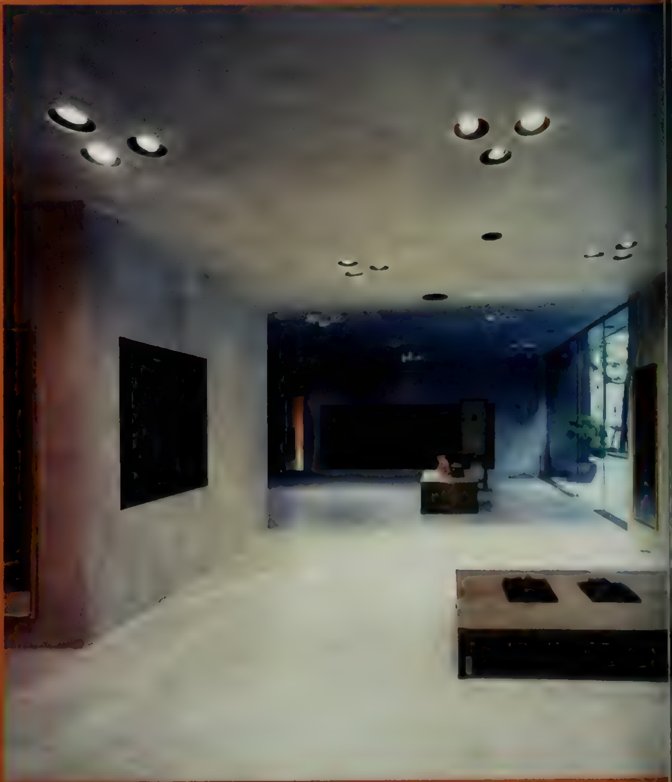
Inui created the building's envelope by inlaying 100,000 clear-resin dots in limestone panels to create Louis Vuitton's iconic *damier* pattern. The size of the dots changes so the pattern merges with the surrounding trees. At night, the dots become luminous and the silhouette of real trees overlaps with the blurred illusion of trees.

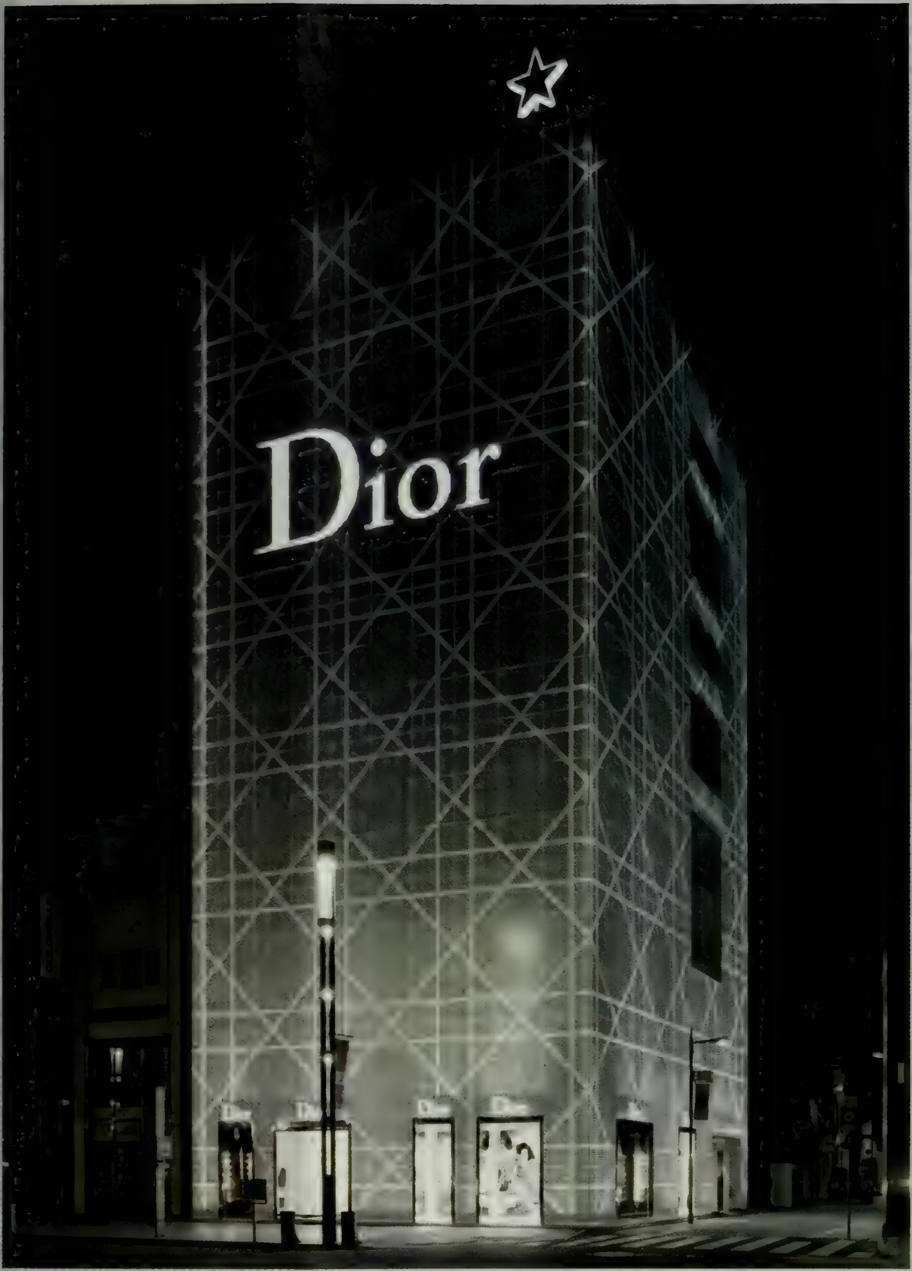


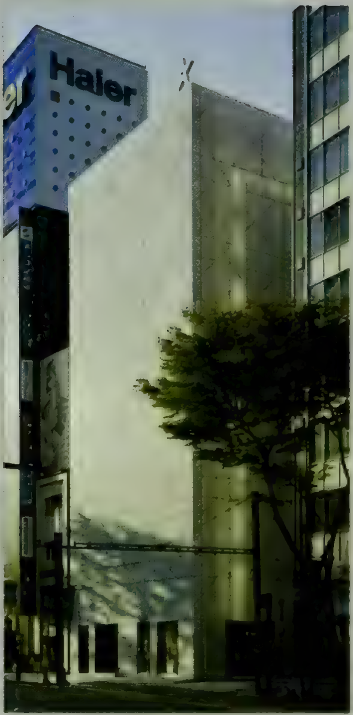
Jurgen Lehl, Marunouchi, Tokyo

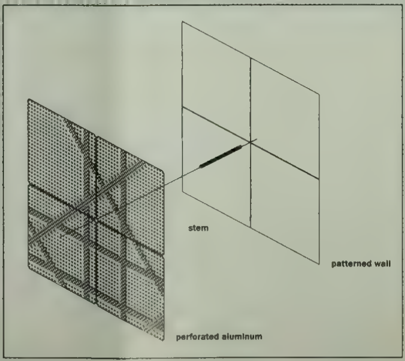
In a subtle exercise of light, shadow and color, Inui painted each of this boutique's five rooms a different color (blue, gray, brown, pink, or purple). By wrapping each room in one color—applying the paint to walls, ceilings and floors—and blurring the boundaries between the colors, she creates a remarkably fluid environment.











Dior Ginza, Tokyo, Japan

For the Dior Building in one of Tokyo's famous shopping districts, Inui designed a double-skin facade composed of perforated-aluminum panels and printed-aluminum panels with lighting in between. Both the perforated and the printed panels express Dior's famous *canage* pattern, and at night they create a moiré effect that gives the building a ghostlike appearance.

Bercy Chen Studio crosses language and cultural barriers from its base in Texas

By Ingrid Spencer

Firm: Bercy Chen Studio
Location: Austin, Texas
Founded: 2001
Design staff: 7
Principals: Thomas Bercy and Calvin Powei Chen
Education: Bercy: University of Texas at Austin, B.Arch., 1999, U.T. Austin, B.Arch. Engineering, 2000; Chen: University of Texas at Austin, B.Arch. 1998
Work history: Bercy: MJ Neal Architects, Austin, Tex., 1999–2001; Samyn & Partners, Brussels, Belgium, 1998; Chen: MJ Neal Architects, Austin, 2000–01; STG, Austin, 1998–99; Max Levy Architect, Dallas, 1997
Key completed projects: Tortuga Residence, Austin, Phase 1 completed spring 2006; Beverly Skyline Residence, Austin, 2004; Lago Vista Lake House, Austin, 2003; Annie House, Austin, 2002; Factory People, retail space, Austin, 2002
Key current projects: Tortuga Residence, Austin, Phase 2 to be completed fall 2006; Asian-American Resource Center master plan, Austin, 2006; Riverview Garden Residences, Austin, 2007; E. 11th multiuse development, Austin, 2007; Volente Residence, Austin, 2007; Skybridge Condominiums, Austin, 2007; Self-sustaining House, 2007; Outdoor amphitheater, Las Vegas, 2007; Florence Oregon Resort Development, Oregon Coast, 2008
Web site: www.bcarc.com

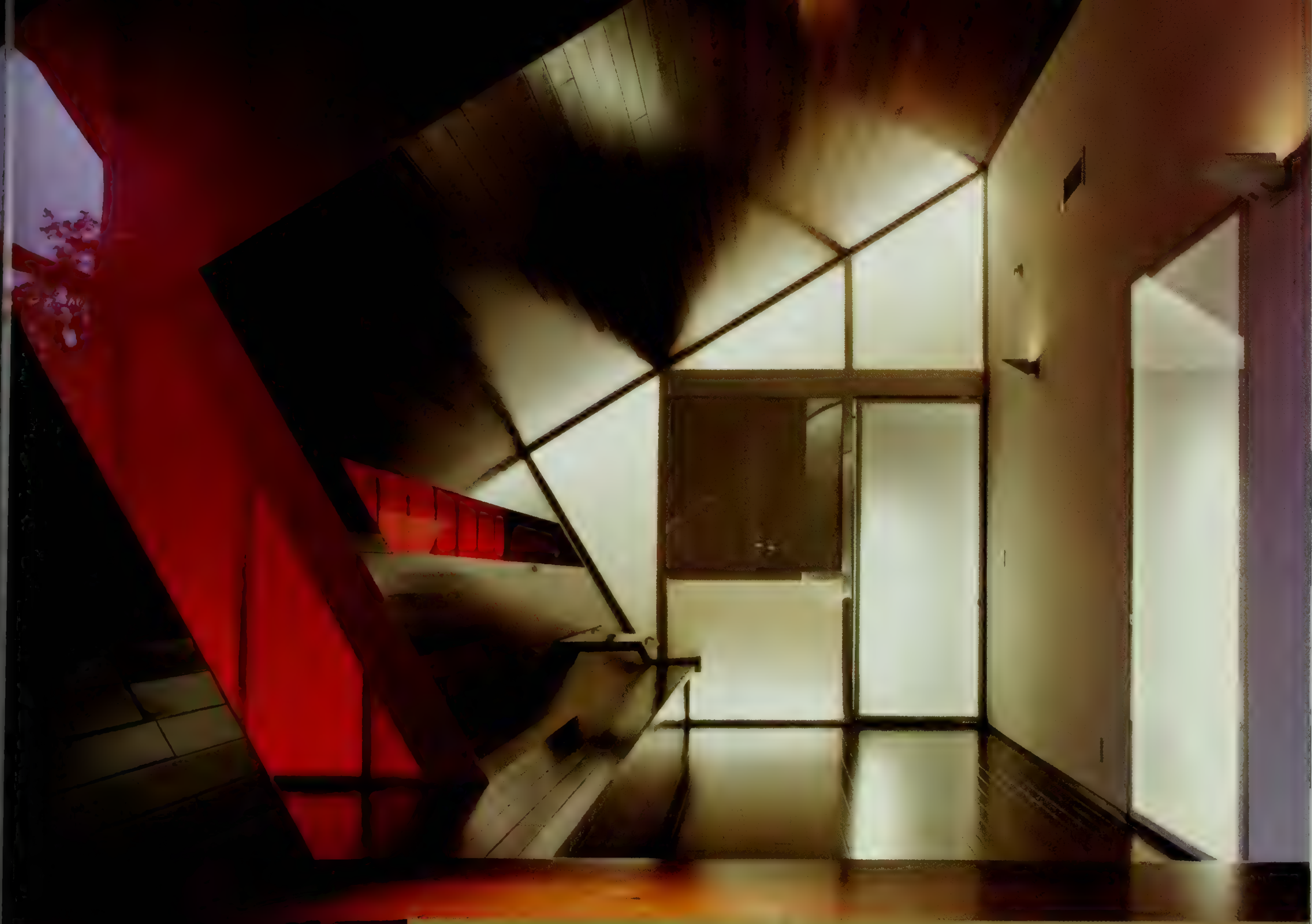
Contributing editor Ingrid Spencer writes about architecture and design from Austin, Texas.

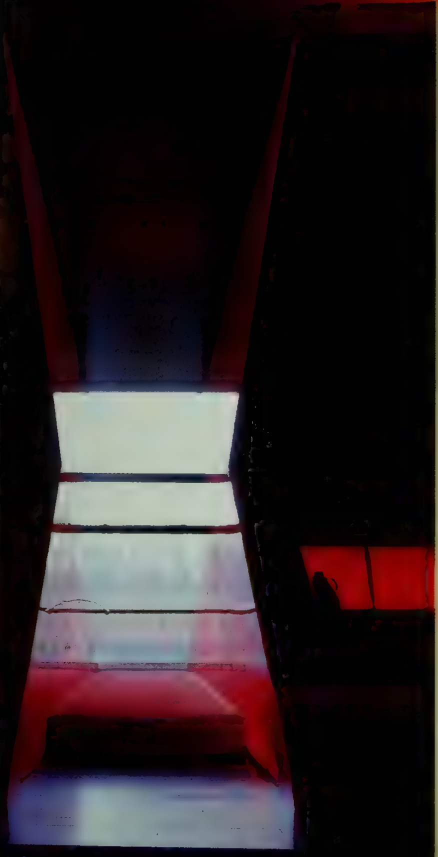
Thomas Bercy and Calvin Chen have found Texas the perfect venue for architects from far-flung places to come together and create a powerful design identity. Since 2001, Bercy (from Brussels) and Chen (from Taipei) have used Austin, Texas, as their home base and muse for a growing body of work that combines a sensitivity to local context with an innovative use of materials. Though rooted in a respect for the Texas Hill Country and what they call "borrowed landscapes," their innovative residential designs and one completed retail project have spread the architects' reputation beyond central Texas. (New York's Architectural League featured Bercy Chen in its Emerging Voices program this year.)

The two principals aren't the only foreign-born designers at work in their design-build firm. "It's like the U.N. around here," says Bercy. Indeed, the six-person firm boasts a 50:50 ratio of international-to-U.S-born members. "You walk in the office and hear me on the phone in French, Calvin chatting away in Chinese, Tom in Danish, Gunter in German—it's pretty interesting." With all of the firm's global contacts, they've begun to hear from clients in their home countries. While they are excited by these opportunities, they also hate to let go of the hands-on approach they have taken with their local jobs. "We create buildings that will last," says Bercy. "They're not ephemeral, so it helps to control the construction process." Chen adds, "Because we've done all the contracting management as well as the design for our Texas projects, we've been able to experiment, and push contractors to break from the norm. We know we can't be so closely involved with the construction on projects farther away. So, we're working on improving our document-making abilities to retain as much control as we can."

And while they learn to let go just a little, and continue entering competitions for projects around the world (the latest is for a library in Stockholm), commissions outside their local time zone have started to come through. The firm is now working on the master plan for an eco-resort on 150 acres outside of Portland, Oregon—a sustainable, mixed-use retreat complete with spa, hotel, and retail components.

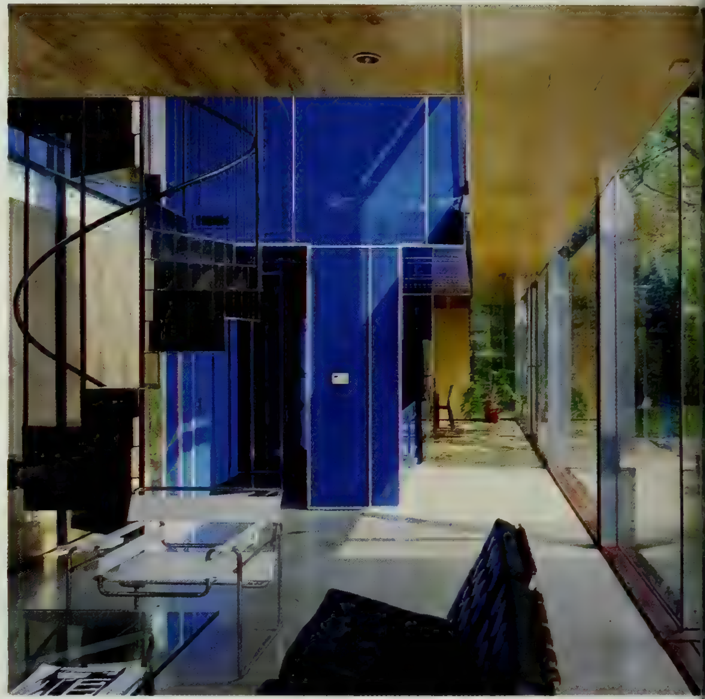
The firm is staying busy in Austin, too. Riverview Residences, three 2,800-square-foot, single-family homes in an urban neighborhood near Lake Austin, started construction this year, just as the firm began the master plan for an Asian-American Resource Center on 17 acres in northeast Austin. With a mix of public and private spaces—including restaurants, retail, classrooms, a library, and a 2,000-seat performance hall—the 90,000-square-foot project will be the team's largest to date. Right now, they're only involved in the master plan, but they hope to design the actual spaces. "We're getting a crash course in politics with this one," says Bercy. Steering the project away from a "Disneyland influence," Bercy and Chen plan to use elements such as ponds and water features, which are hallmarks of their design aesthetic and help temper the hot climate of Austin. Applying ideas inspired by roof gardens in Marrakesh and Casablanca and other designs from around the world keeps the firm's perspective "200 percent global," says Bercy. "Texas has a lot of space," says Chen, "and when you compare the natural landscape—the limestone formations, the exfoliating, the erosion patterns—to Taiwan, for example, with its miniaturization of landscape, then you gain a fresh perspective of place." ■





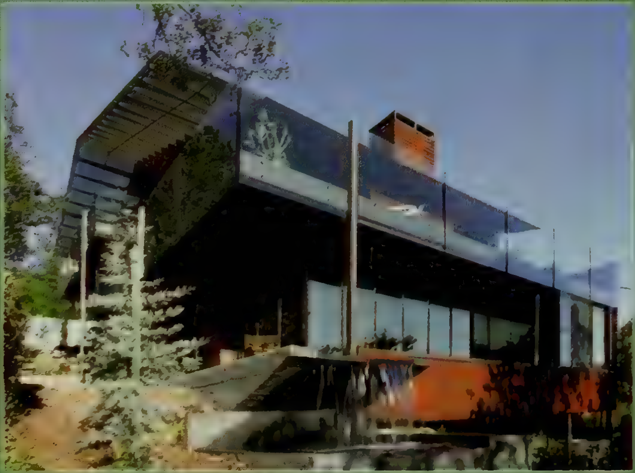
Tortuga Residence, Austin, Texas

Like a folded plane, massaranduba-wood cladding wraps a dormer-turned-reading-room niche (above and left) in this 5,000-square-foot remodel of and addition to a 1980s tract home on Lake Austin. Reflective red acrylic sheets add to the warmth of the space. Above the garage, a recreation room seems larger than it really is due to its translucent white, acrylic-paneled walls, which are lit from behind with kinetic colored lights, revealing a room of pure color at night.



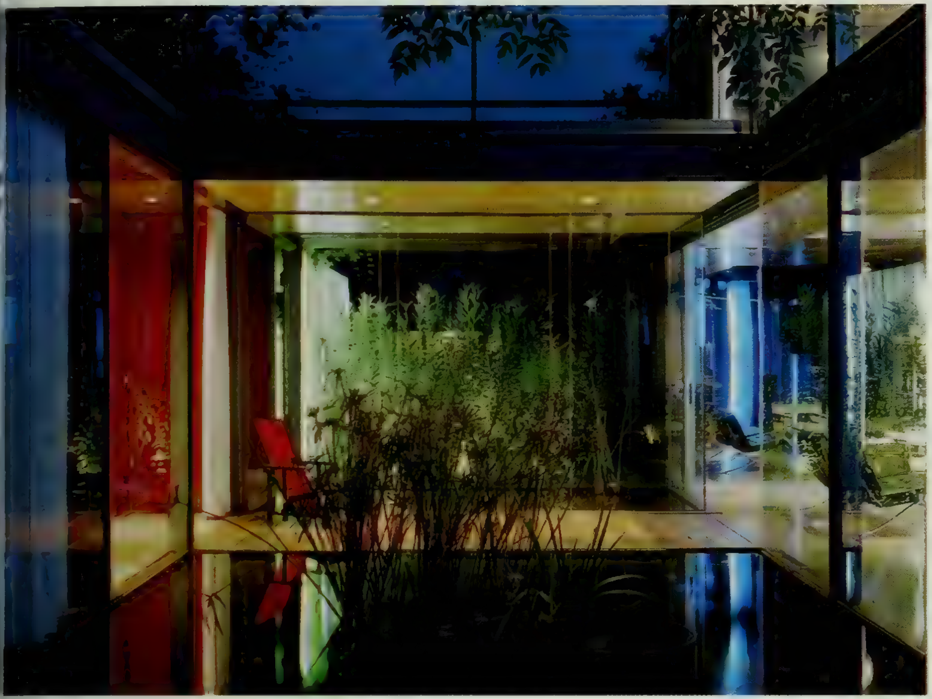
Beverly Skyline Residence, Austin

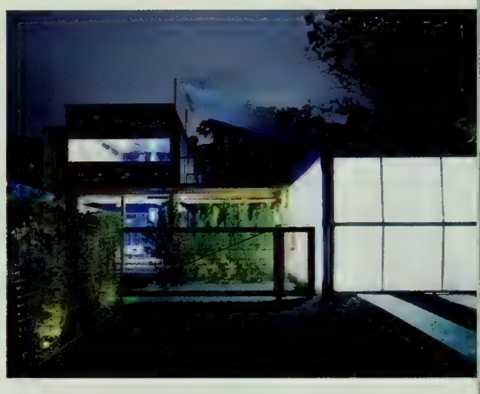
Inspired by the 7th-century Kiyomizu Temple in Kyoto, Japan, this 3-story, 3,500-square-foot remodel of a 1970s home has panoramic Hill-Country views. The project took recycling seriously, using 600 glass blocks taken from a demolished hospital to form a translucent, streetside wall, and featuring an extensive rain-collection system that includes cascading pools and reservoirs all around the house. Glass balustrades on the upstairs decks were used to seemingly dissolve corners on the upper level. The downstairs deck clad in massaranduba wood has no barriers separating it from the untamed landscape beyond.

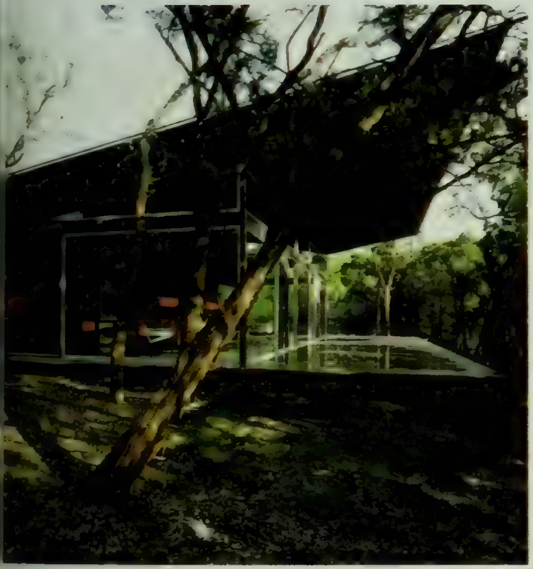


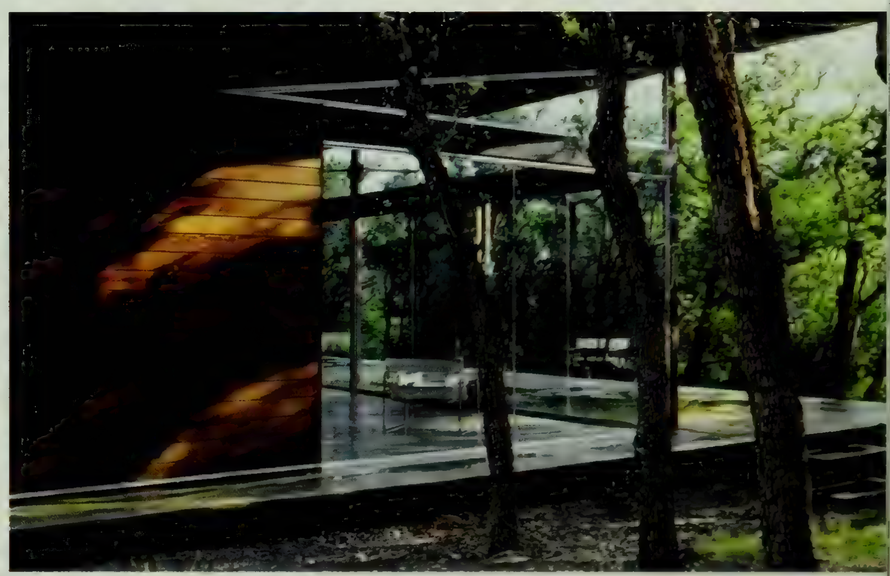
Annie Residence, Austin

The architects divided one 2,000-square-foot volume into two distinct pavilions for a pair of related households in an urban neighborhood (opposite, left). Connected by a glass corridor (opposite, right) and a reflecting pool, the pavilions feature service cores clad in colored acrylic panels—red on one and blue on the other (left). The house's street facade displays a glowing garage of white acrylic sheeting and a second floor deck covered in stretched canvas (below).









Lago Vista Residence, Lago Vista, Texas

Basically an open-plan box clad in ipe wood, this 900-square-foot vacation home also has 600 square feet of outdoor porch under its extended shed roof. The roof cantilevers 13 feet over the concrete-slab patio. The patio cantilevers over a concrete foundation, seeming to hover above the site.

Outside Spain's design capitals, **BmasC Architects** places modernity in context

By David Cohn

Architect: BmasC Architects
Location: Ávila, Spain
Founded: 1998
Design staff: 6
Principals: Arturo Blanco Herrero and Alegría Colón Mur
Education: Blanco: Polytechnic University ETSA, Madrid, Ph.D., 2005; University of Valladolid ETSA, M.Arch., 1997: University of Valladolid ETSA, B.Arch., 1996; Colón: Polytechnic University ETSA, Madrid, Ph.D., 2005; University of Valladolid ETSA, M.Arch., 2000: University of Valladolid ETSA, B.Arch., 1998
Work history: Blanco: CJC University ETSA, Madrid, professor, 2005–present; Colón: CJC University ETSA, Madrid, visiting professor, 2005
Key completed projects: Jeweler's shop, Ávila, 2005; Municipal Preschool Education Center, Ávila, 2005; Primary Education Center, Sanchidrian, 2005; Mayo House, Las Berlanas, 2003; Eras de Renueva High School, León, 2003; Shoe shop, Ávila, 2002; Shoe shop, Ávila, 2000
Key current projects: Municipal Space for Youth, Ávila, 2006; Education Center, Piedralaves, 2006; Preschool Education Center, Sotillo de la Adrada, 2006; Huete House, Muñopepe, 2007; Municipal Cemetery, La Colilla, 2007; Industrial Nursery for Businesses, Ávila, 2007; 63 state-subsidized dwellings, Ávila, 2008; Social Houses, San Esteban del Valle, 2008; French Lyceum, Valladolid, 2008
Web site: www.bmasc.es

Whether it's a line of identical glass cases in a jewelry shop, or a row of repeated classrooms at a preschool, the designs of Arturo Blanco and Alegría Colón often involve an elegantly simple unfolding of abstract forms. Based in the small historic capital of Ávila, 70 miles northwest of Madrid, their practice, BmasC Architects, shows how Spain's once-dormant regional centers are becoming motors of contemporary design. Blanco and Colón studied architecture at a small, regional school in nearby Valladolid. Since opening their studio in 1998, they've built eight projects and have nearly a dozen in various stages of development.

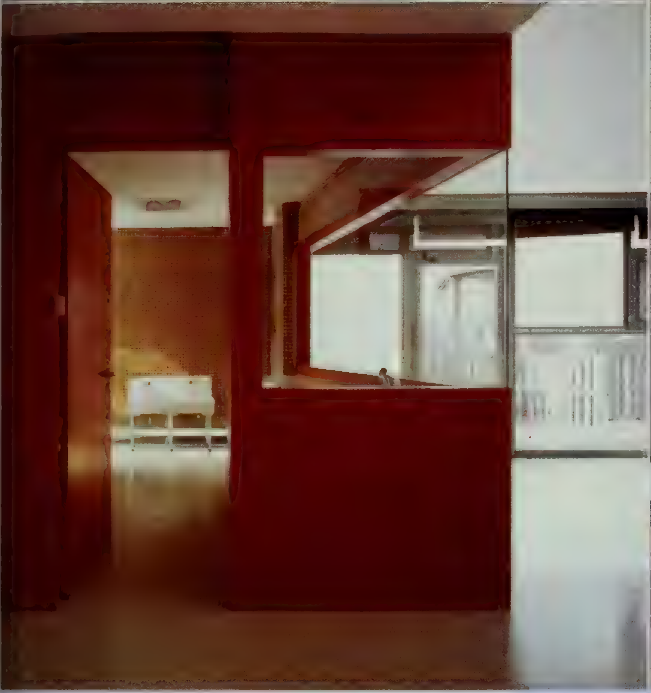
Blanco and Colón view abstraction not as their principal goal but a way of developing the potential of each problem, each program, each site. For example, the architects complemented the lines of glass cases in their tiny jewelry shop in Ávila with an illuminated ceiling and dark stone floor so the composition draws the eyes of passing pedestrians deep into the space, a strategy of perspectival recession they also used in two shoe stores in Ávila's historic core. At the preschool, also in Ávila, classrooms alternate with small wings containing service cores to define outdoor play spaces, while the rhythmic spacing of clerestory windows in the classroom's upper volumes provides even daylighting. "We are interested in the pragmatics of architecture, its potential to transform realities," states Blanco.

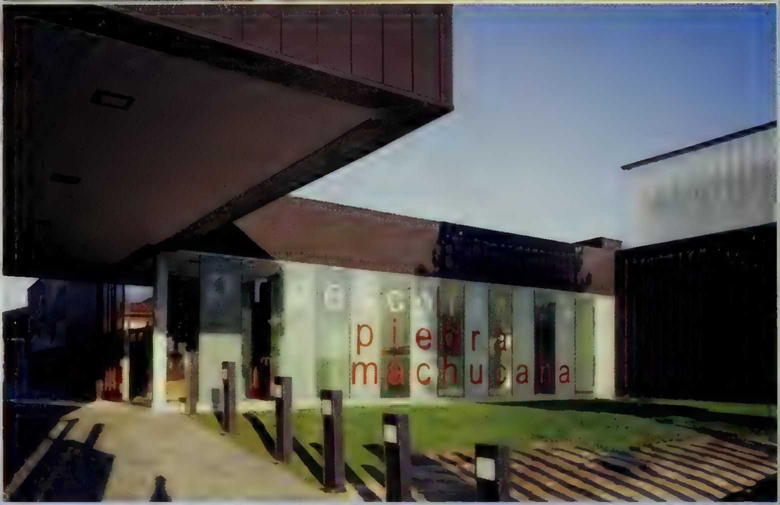
In their largest work so far, an addition to the Eras de Renueva High School in León, a long block of classrooms two stories high sits atop three perpendicular volumes (containing the gym, library, and cafeteria), with open spaces between them to visually connect the city and the playing fields. The south elevation, facing the city, is a collage of galvanized steel latticework within a metal grid, with screens oriented in different directions to create a range of textures. Seminar rooms and small offices irregularly line the opposite facade, creating an abstract play of wood volumes and voids on the exterior that allows daylight to reach central corridors.

In the Mayo House, a weekend retreat in the village of Las Berlanas, the architects again contrast upper and lower volumes, this time to create two kinds of living space: a relatively enclosed but social space on the ground floor arranged around a chimney and a walled garden; and an upper studio that steals views of the adjoining fields from above the bedrooms. According to Blanco, the juxtaposed volumes recall the sculptural stacks of hay bales the architects had seen in village wheatfields.

In both the preschool in Ávila and a primary school in the village of Sanchidrian, the architects weave together open spaces and built volumes to connect children with the outdoors. Thinking of the cold winters in Sanchidrian, they oriented the classrooms to the south, with fully glazed walls given a Mondrian-like pattern of fenestration.

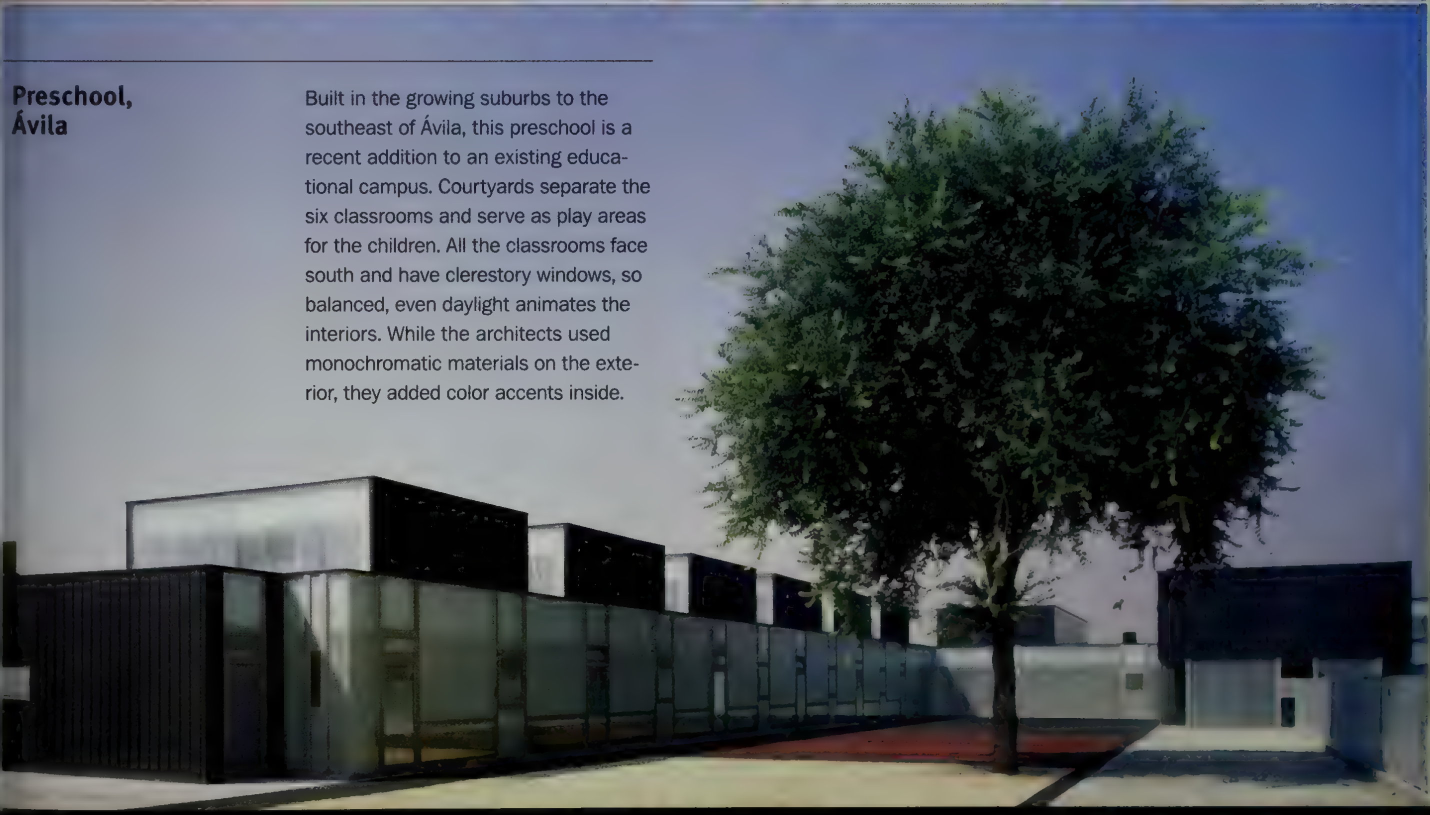
Referring to the crisp detailing of their work, which regularly features different kinds of glass, zinc cladding, and accents of board-formed concrete and wood, Blanco says, "Although it might sound out of date, we believe in a new beauty based on a recycling of modernity." In its mineral hardness and formal purity, their work claims its place beside the severe granite palaces, convents, churches, and fortified walls of medieval Ávila. At the same time, the light, spacious, and translucent play of their volumes breathes new life into this ancient capital and its rural surroundings. ■





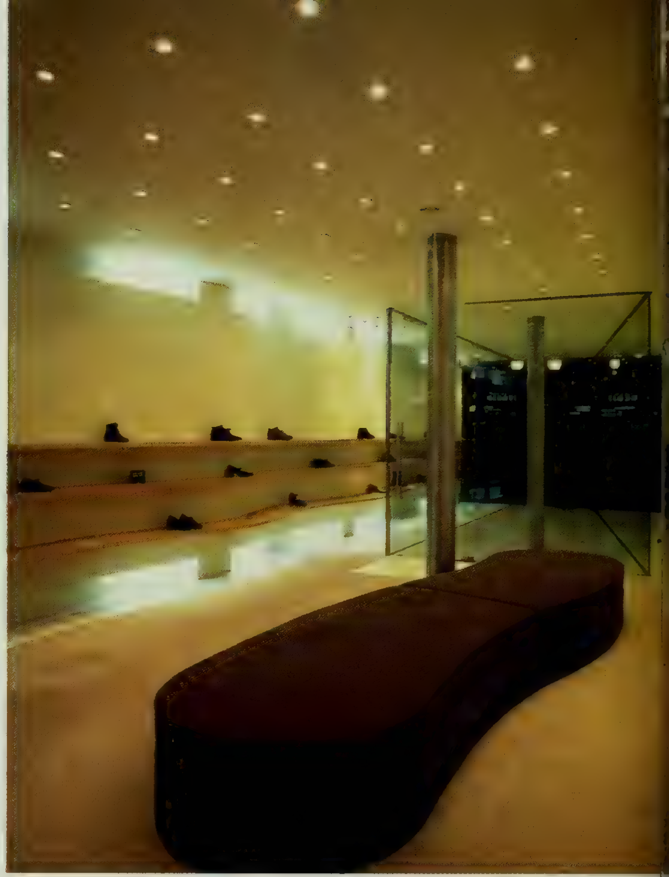
Preschool, Ávila

Built in the growing suburbs to the southeast of Ávila, this preschool is a recent addition to an existing educational campus. Courtyards separate the six classrooms and serve as play areas for the children. All the classrooms face south and have clerestory windows, so balanced, even daylight animates the interiors. While the architects used monochromatic materials on the exterior, they added color accents inside.



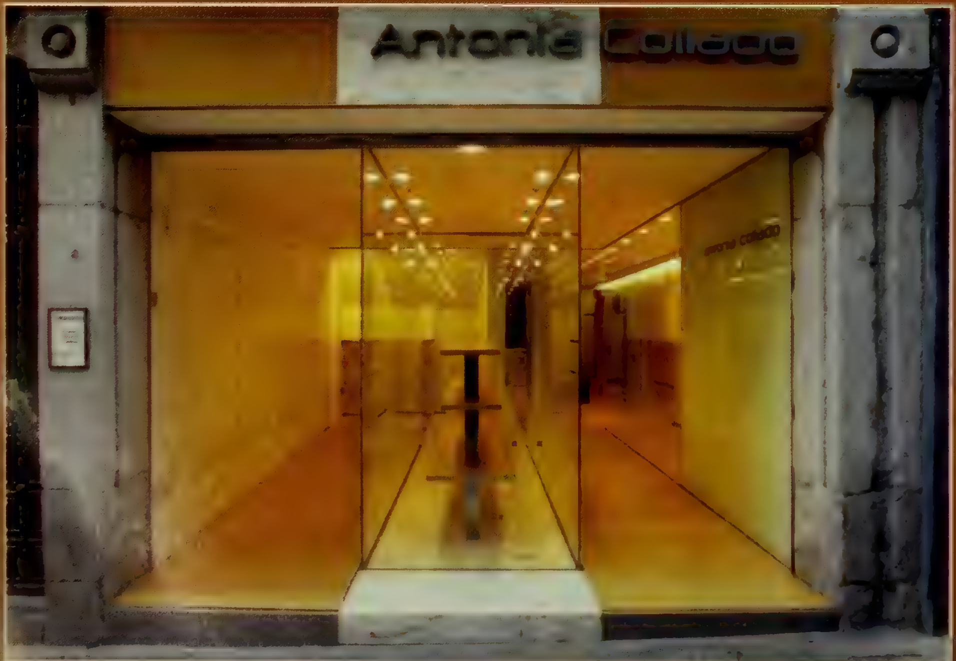
Shoe Shop, Ávila

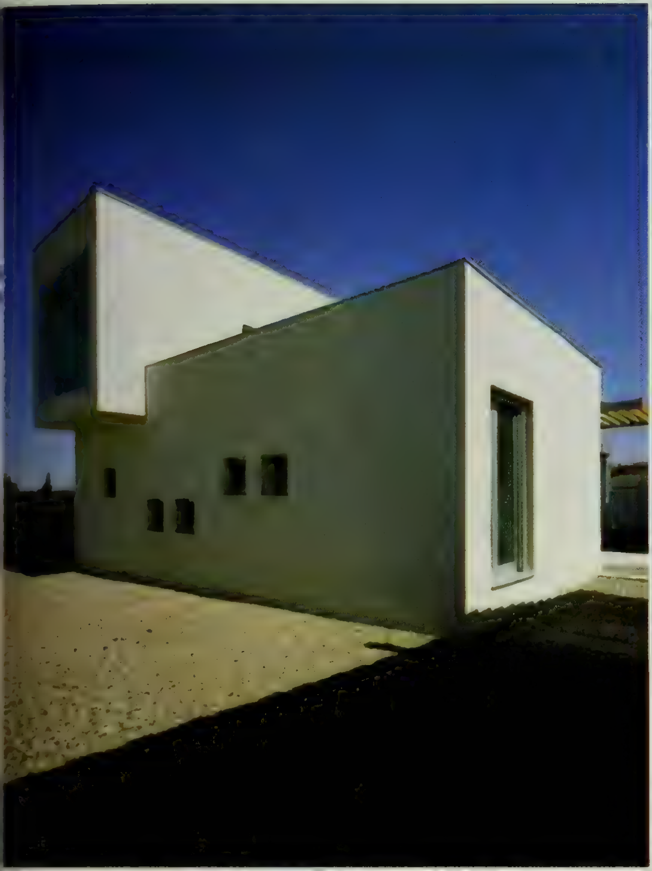
Completed in 2000, this boutique in the historic center of Ávila attracts shoppers by appearing almost like a continuation of the sidewalk. Gentle curves in the shelves on one side of the store and in the seating element add subtle notes of asymmetry in the elongated boxlike interior. The architects treated surfaces like skins layered one after another.

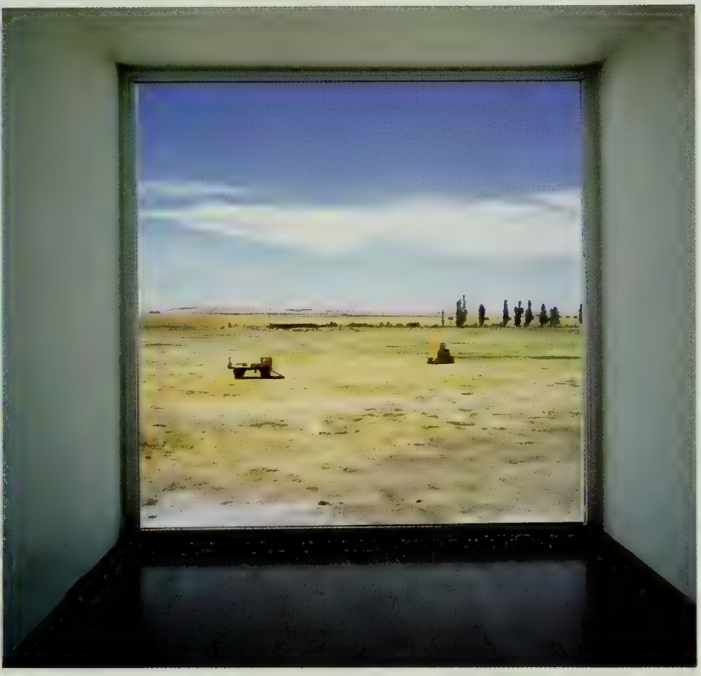


Shoe Shop, Ávila

Floating inside the store's extruded sales space, a floor-to-ceiling glass bo works as an enticing display case for shoes. Just as the architects played with skins in the shoe store (above) completed one year earlier, here they create a remarkable sense of layering in such a small space. A simple palette of materials—mostly wood, marble, an glass—enhances the impact of the spatial scheme.

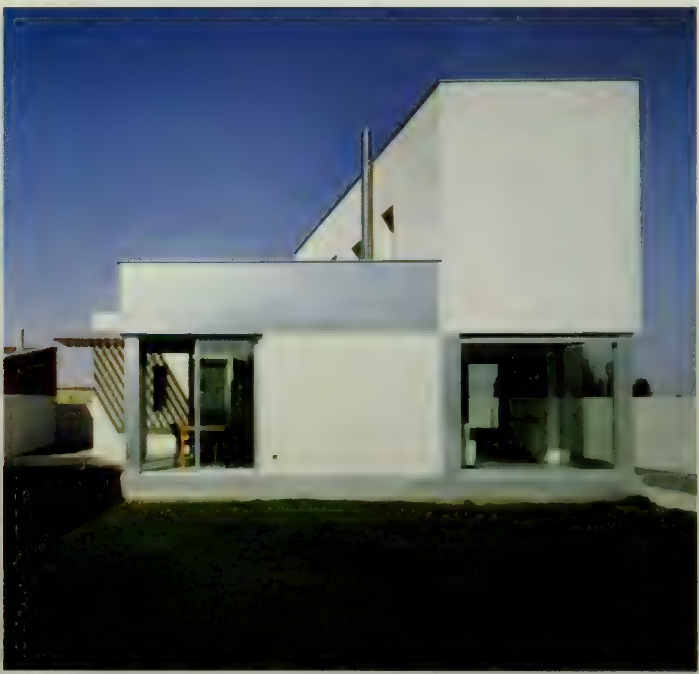






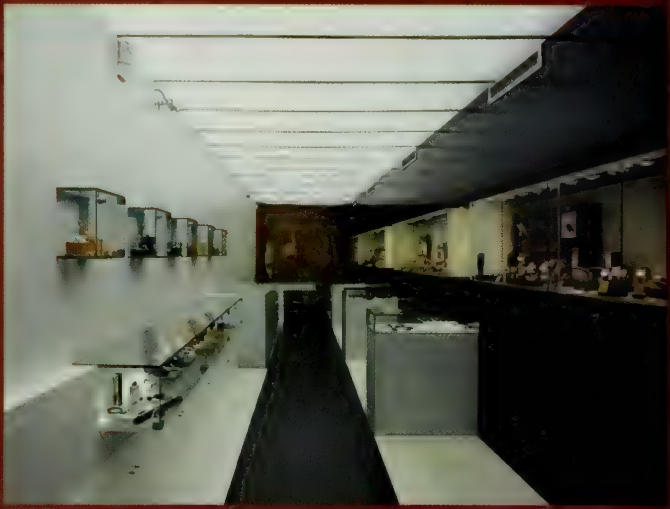
Mayo House, Las Berlanas

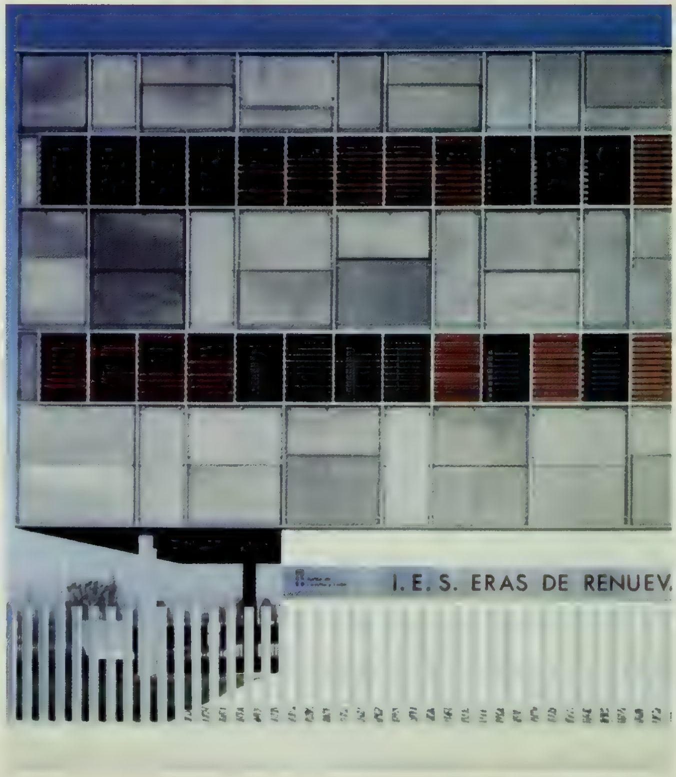
Set on a flat site on the Castilian plains, this weekend home opens up to its rural surroundings at some places and turns away from them at others. According to the architects, it is both a retreat from and a window onto the outdoors. A garden wall sets limits to the owners' domain and creates three outdoor spaces while at the same time taming the land around the house.

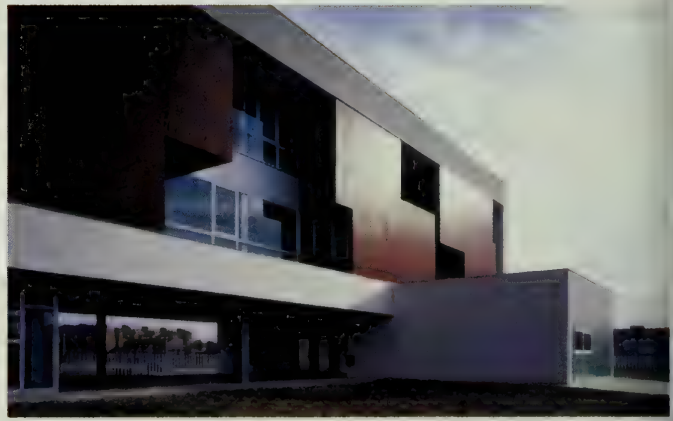


Jeweler's Shop, Ávila

This store's large glass facade and simple, extruded form emphasize the continuity between indoors and out. A long band of even lighting set in the ceiling helps unify the sales space, while spots set into a series of display cases on one wall highlight the merchandise. The architects' use of repetitive elements, crisp details, and a long band of black marble in the floor pulls shoppers through the space.

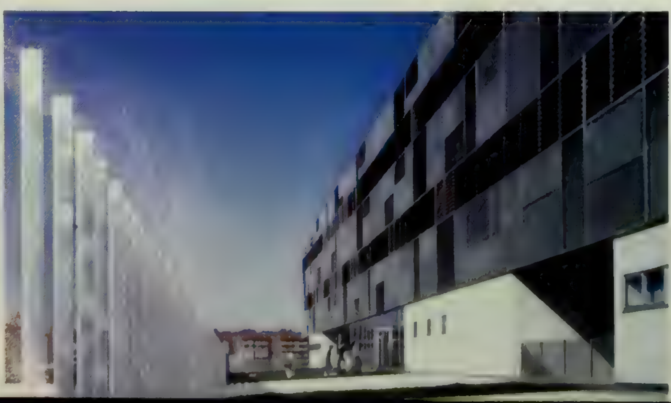


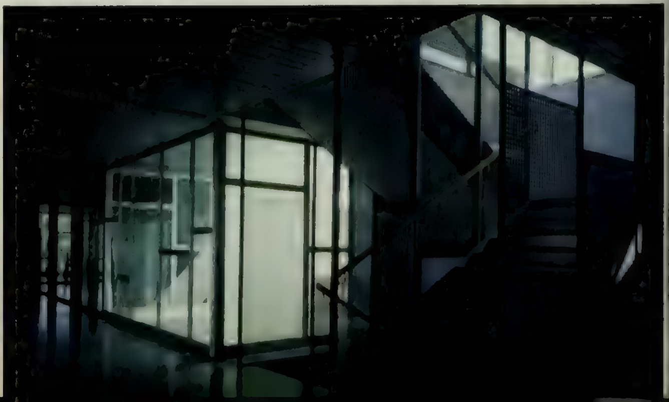


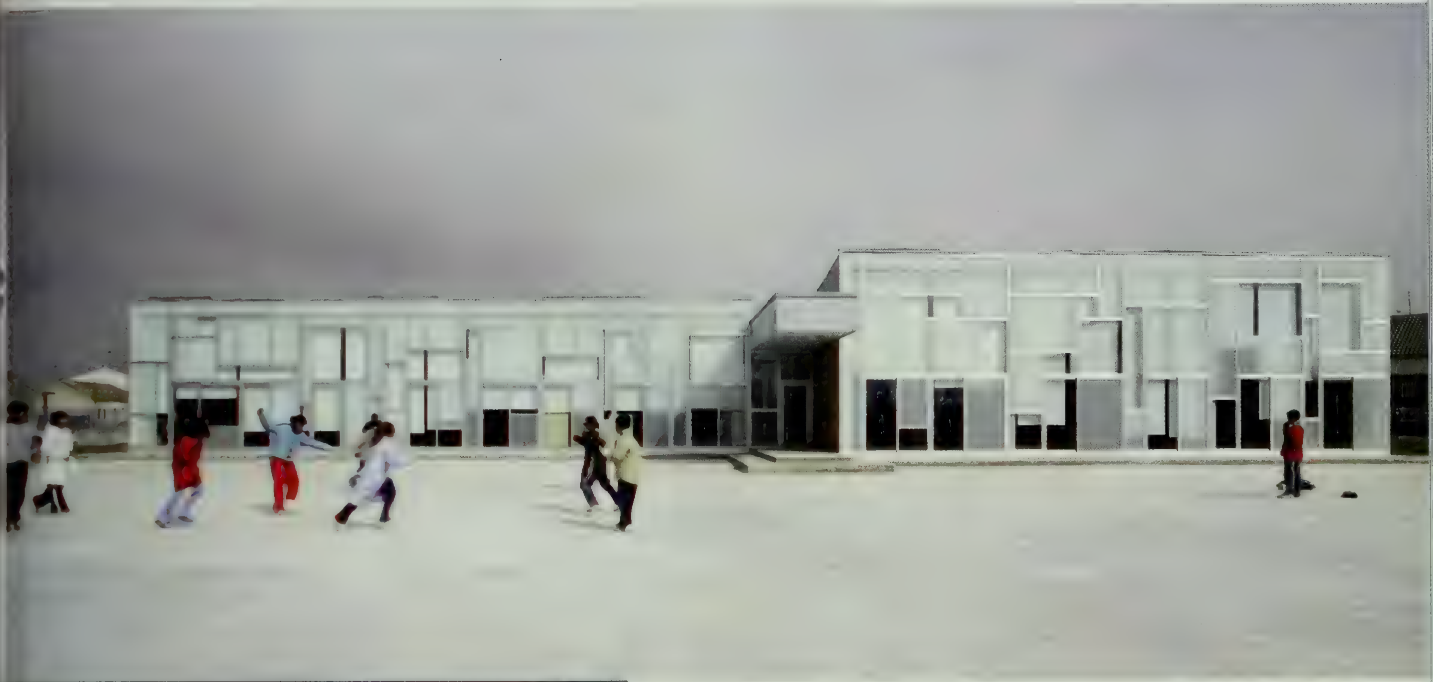


Eras de Renueva High School, León

A two-story bar containing classrooms and small offices sits above three perpendicular blocks housing a gymnasium, a cafeteria, and a library. On the north side of the upper volume, the architects contrasted solid wood planes with recessed glass surfaces, while on the south they created a flatter composition with slatted shutters and galvanized-steel panels.

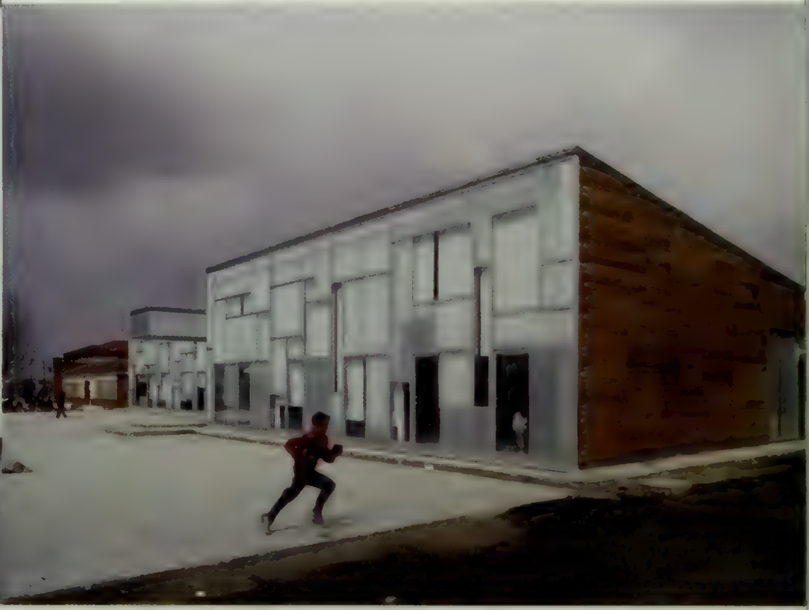






Primary School, Sanchidrian

BmasC oriented two classroom wings and a large multipurpose room to the south to help warm and animate these spaces, since the school is located in an area where it is cold for much of the school year. A combination of clear and translucent glazing on these south elevations creates a lively collage, while some of the wood on the solid elevations was recycled from forms used for the building's poured-concrete walls.



Assadi + Pulido make an architectural contribution to Chile's evolving identity

By Beth Broome

Architect: Assadi + Pulido
Location: Santiago, Chile
Founded: 1999
Design staff: 3
Principals: Felipe Assadi and Francisca Pulido
Education: Assadi: Universidad Católica de Chile, M.Arch., 2006; Universidad Finis Terrae, Chile, B.A., 1996; Pulido: Universidad Finis Terrae, B.A., 1996
Work history: Assadi: Academic—Andrés Bello University, Santiago, 1999–present; Pulido: Academic—Andrés Bello University, 2003–present; Universidad Finis Terrae, Chile, 1997–2003
Key completed projects: 02 House, Rancagua, Chile, 2006; Deck House, Maitencillo, Puchuncaví, Chile, 2006; Serrano House, Santiago, 2006; Giovo House, Santiago, 2006; Russo Club, Talca, Chile, 2005; 20 x 20 House, Santiago, 2005; Teatro del Parque, Santiago, 2004; Raveau House, Santiago, 2003; Arauco Express, Santiago, 2001; Schmitz House, Calera de Tango, Santiago, 2001
Key current projects: Verbo Divino School, first phase, Santiago, 2006; García House, Santiago, 2006; Lorenzini House, Santiago, 2006; FdR House, Santiago, 2007
Web site: www.felipeassadi.com

Chile is like an island in Latin America," says Felipe Assadi, partner with his wife Francisca Pulido in their Santiago-based practice, Assadi + Pulido. Bounded by the Andes to the east, the Atacama Desert to the north, and the Pacific Ocean along its entire western edge, Chile is, indeed, geographically isolated. To many Chileans, the country—despite its long history—also feels "young," like an island, culturally speaking. "The freedom of our practice is based in the fact that we do not have a strong tradition to deal with," says Assadi.

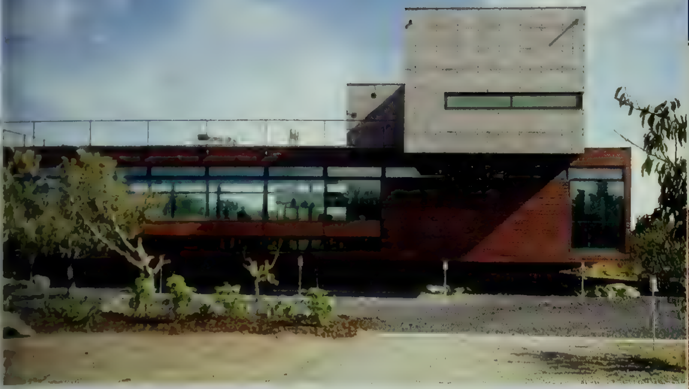
"Chile is a place of opportunity," adds Pulido. For many designers, the two explain, long apprenticeships, like those of European or American architects, are not prerequisites for establishing one's own firm. Indeed, neither partner spent much time working for others. Assadi, who is from Santiago, set out on his own in 1999, just three years after completing his undergraduate studies in architecture at Finis Terrae University in Santiago, where he met Pulido, originally from Punta Arenas in the south. Before officially joining Assadi and forming their partnership earlier this year, Pulido taught and worked part-time for different offices, including Assadi's. "There's a lot to do here," explains Assadi. "The country is in the process of creating an identity, and we are a part of this."

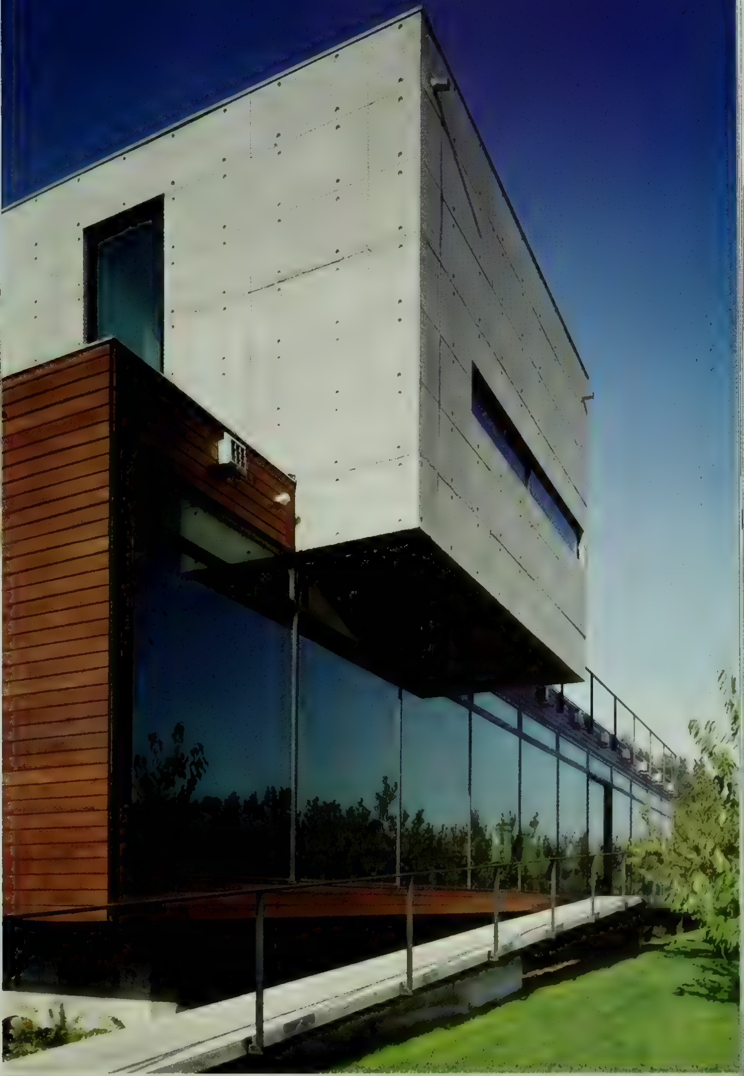
For a young firm, Assadi + Pulido has produced a hefty portfolio of built work, mostly in Chile. "We are more of a geographical country," says Assadi, referring to Chile's great swaths of mountainous, arid, fertile, and coastal terrains. "Our work is always based in the landscape. Everything we make is new, because there are no references." The three concepts that guide the practice, the partners say, are *justeza*, *pertinencia*, and *equilibrio*. A project must be appropriate within its context, relevant to a given moment and environment, and involve a balance between the architect and client.

In its short life, Assadi + Pulido has had ample opportunity to experiment with a variety of programs. Its projects range from a 250-seat theater to a fruit warehouse to a drive-through pick-up facility for items purchased online. However, it is their shared love for residential work that prompted the husband and wife to become working partners after seven years of marriage. With commercial jobs, Assadi explains, the bottom line *is* the bottom line. Without being bogged down by a house's success as a commodity, the architects can focus on the weighty but rewarding responsibility of determining how design affects those living within it.

The Serrano House, for example, takes full advantage of its dramatic site in the Andean foothills. With part of its lower level built into the slope on which it sits, the house offers privacy from its neighbors. The rest of the lower floor, defined by steel columns and large glass windows, is almost transparent, making the upper level of concrete clad in Amazonian wood appear to levitate over the city below. The 20 x 20 House, on the other hand, quite literally admits and reflects the orchard it sits in.

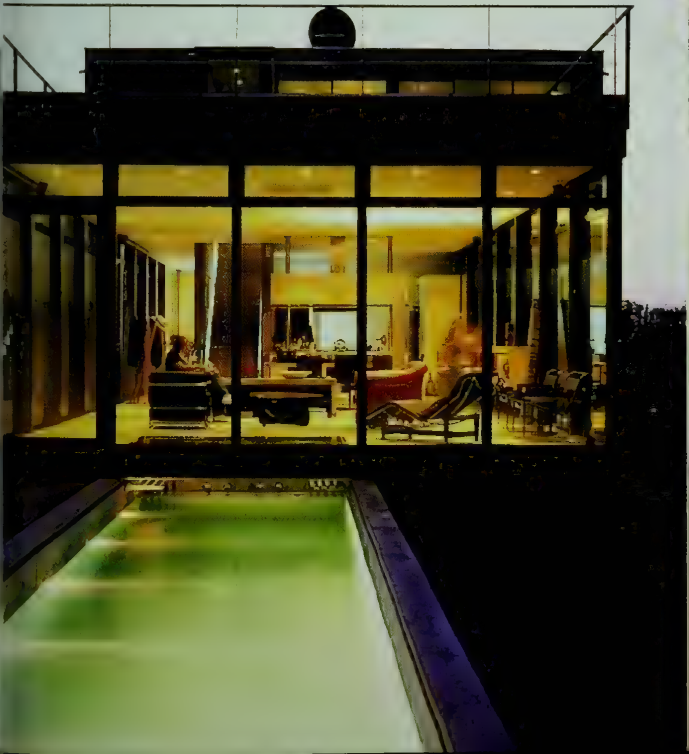
Assadi + Pulido looks forward to increasing the scale of its work while maintaining a small, intimate office. The firm is currently designing a 25-story apartment building in Santiago and a nine-story office building in Valparaiso. "We have an internal law," says Assadi, "that every project we make has to be an opportunity to do even better things." ■

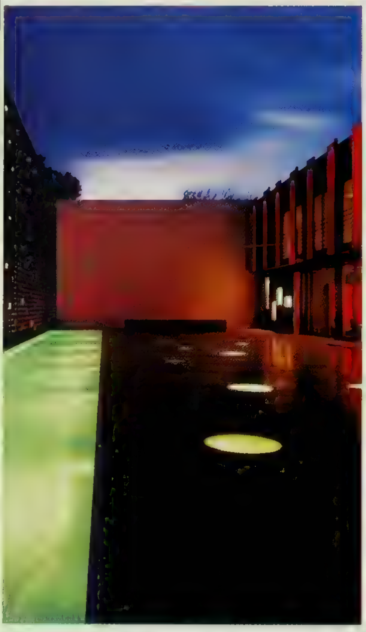


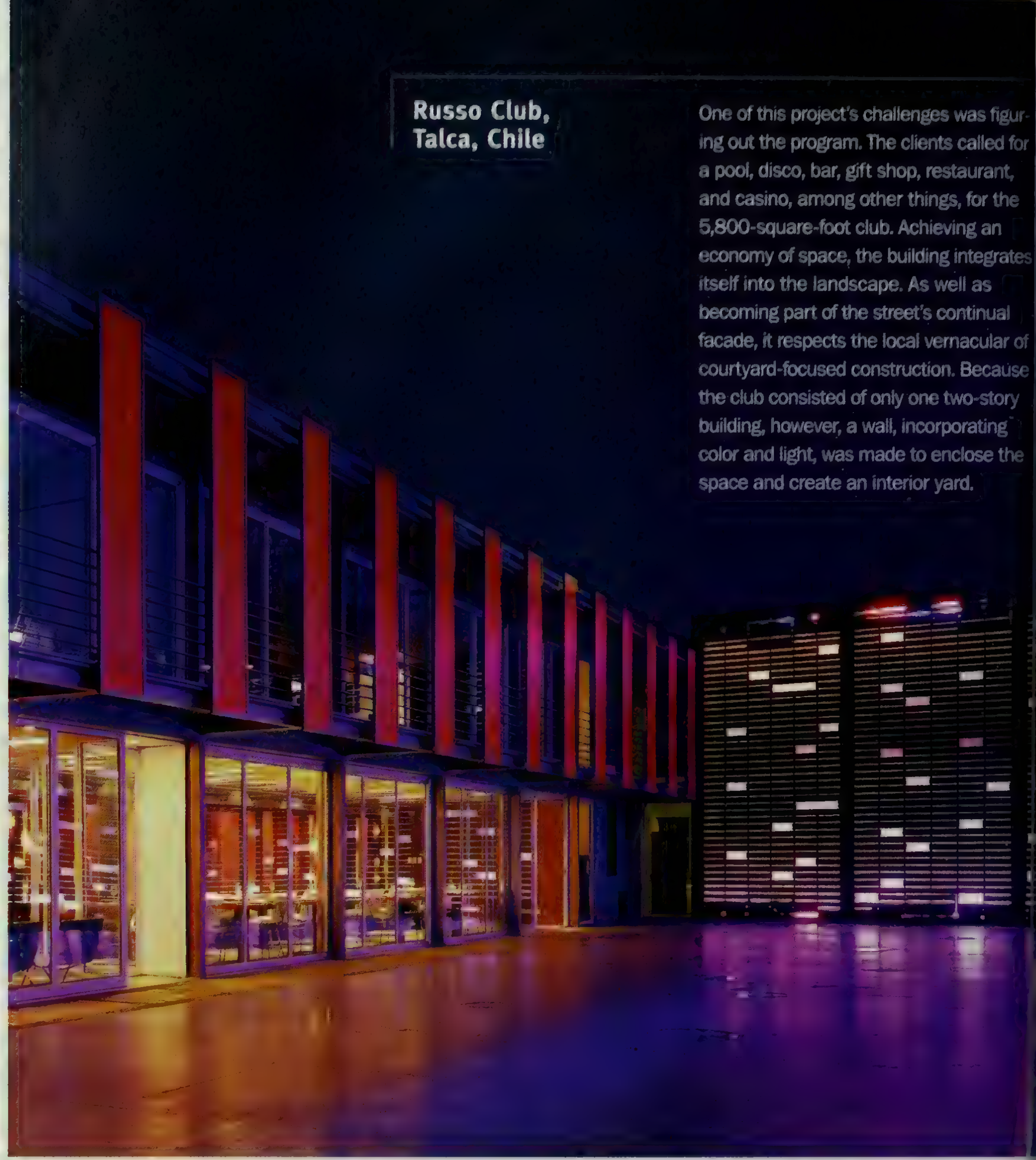


Schmitz House, Santiago

Built for a couple on a flat parcel dotted by fruit trees in Santiago's Calera de Tango municipality, the house is elevated from the ground on a concrete foundation wall, which also contains a swimming pool and basement. The public spaces reside within a horizontal volume of glass and alerce wood. Creating a vertical contrast, the second volume, a concrete-and-glass box housing the sleeping quarters, opens onto a broad patio that looks down on the rugged terrain below.





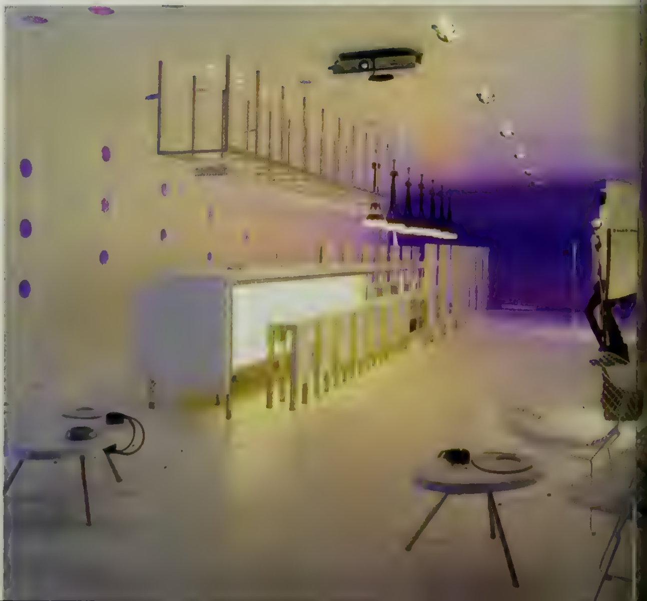


Russo Club, Talca, Chile

One of this project's challenges was figuring out the program. The clients called for a pool, disco, bar, gift shop, restaurant, and casino, among other things, for the 5,800-square-foot club. Achieving an economy of space, the building integrates itself into the landscape. As well as becoming part of the street's continual facade, it respects the local vernacular of courtyard-focused construction. Because the club consisted of only one two-story building, however, a wall, incorporating color and light, was made to enclose the space and create an interior yard.

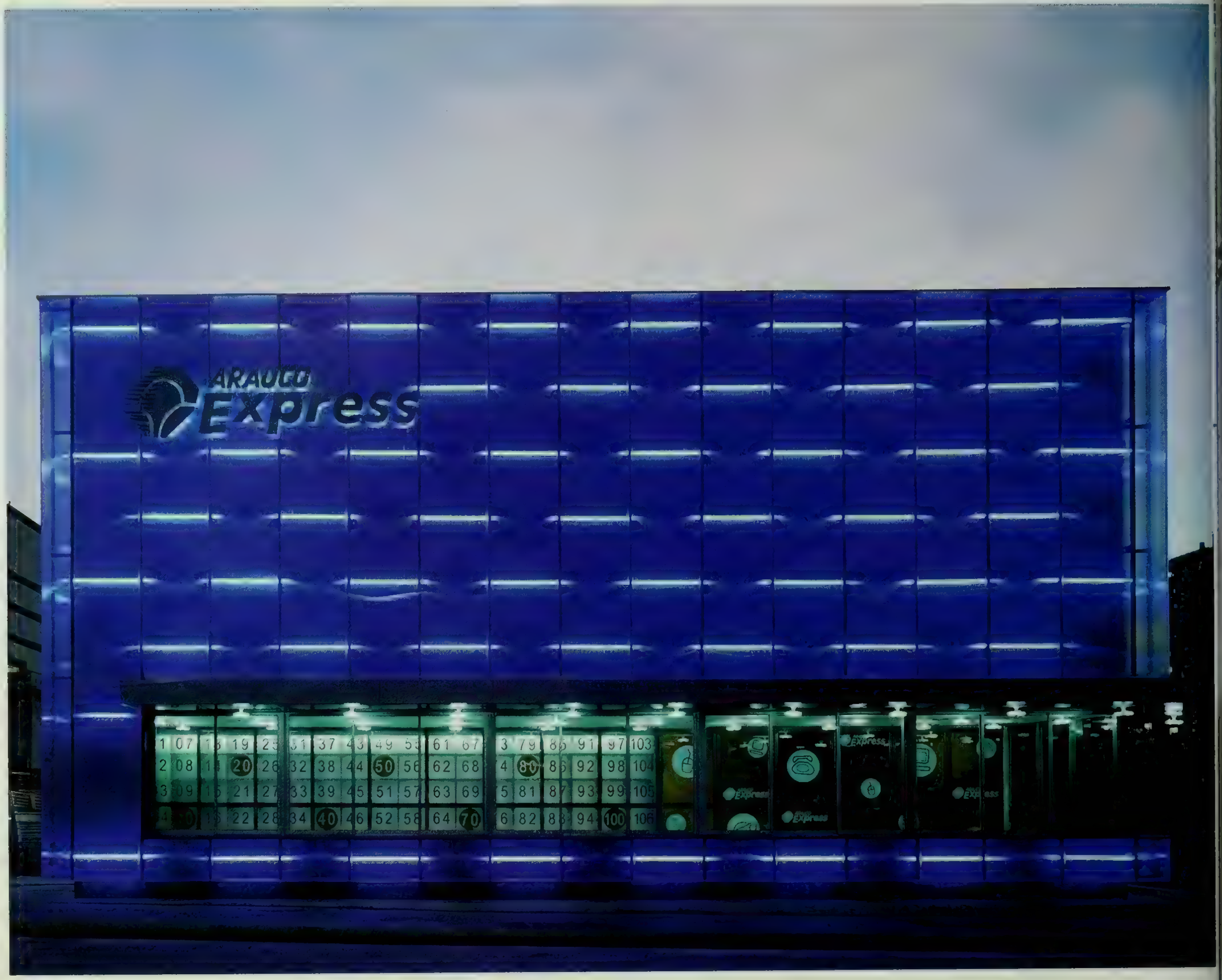
Bar el Tubo, Lima, Peru

Uncharacteristically, the architects' aim was to create a new space completely out of context with its location. "The Tube" bar and art gallery resides within the partly abandoned Neoclassical Puericultorio Pérez Araníbar building, which still houses an orphanage. So as not to interfere with the historic architecture surrounding it, Assadi + Pulido envisioned the bar as a tube suspended in the space. Holes drilled in the wall and ceiling admit a violet light from the exterior, emphasizing the bar's capsulelike quality.



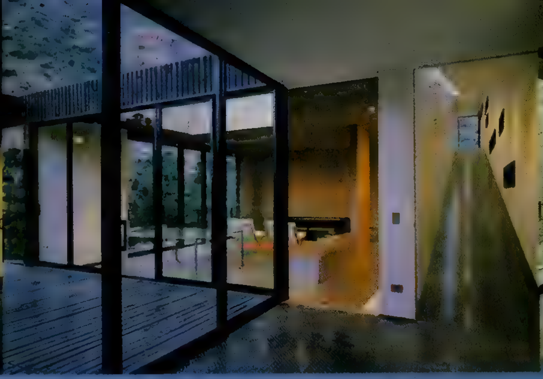
20 x 20 House, Calera de Tango, Chile

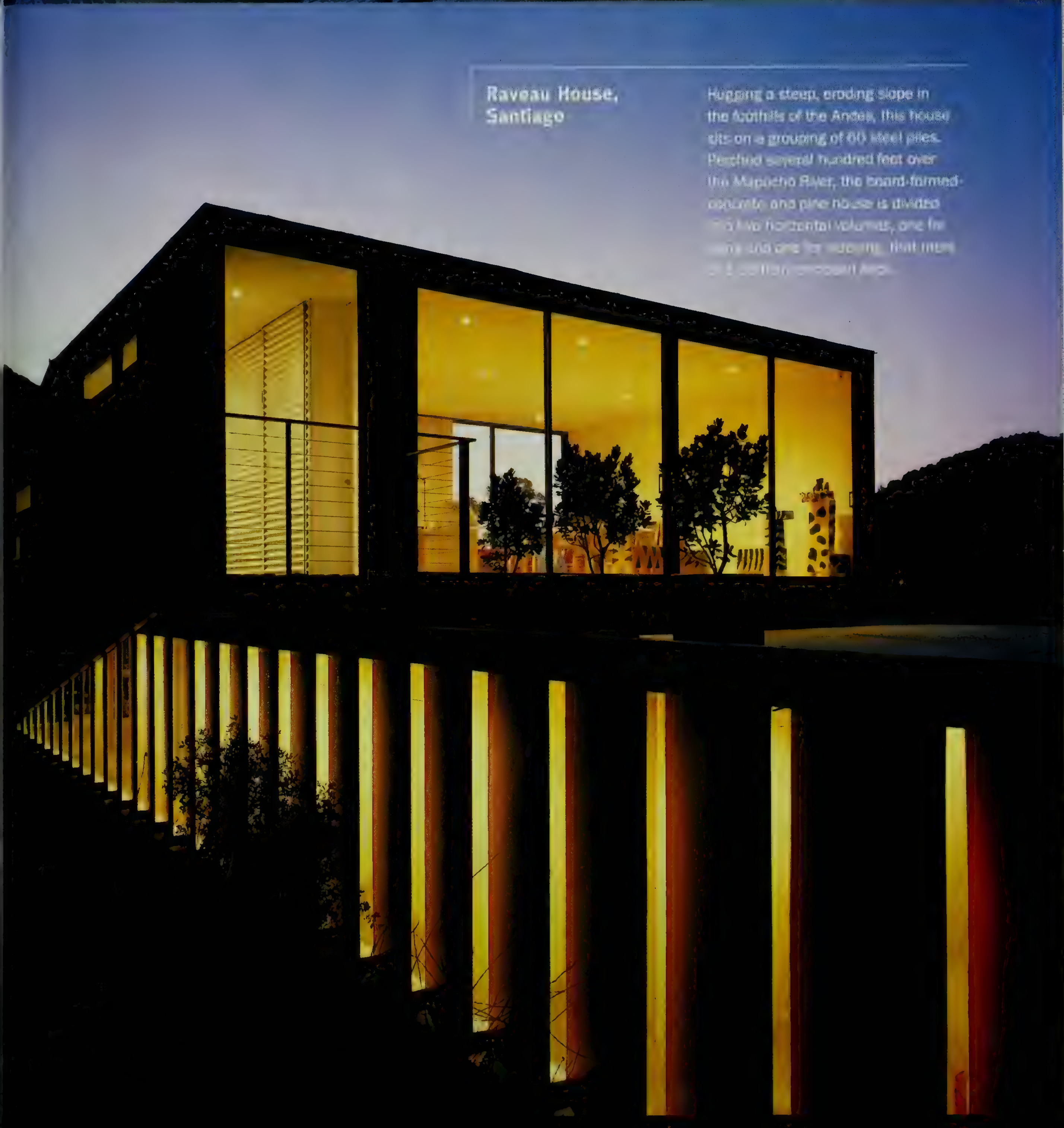
A guest-and-game house for the larger Schmitz House, the 20 x 20 House, which sits in an old orchard, explores the squared unit. Divided into units of 20 centimeters, the house is based on the idea of a ceramic box. In fact, the west facade of the predominantly glass pavilion is clad in black tile, resulting in a building that not only admits the natural landscape into the interior, but also reflects it.



Arauco Express, Santiago

Designed as a drive-through, the interior of this pick-up facility for items purchased online is dedicated primarily to merchandise storage. The gap between a double skin of wood and polycarbonate is illuminated with cobalt-colored fluorescent lighting, making the building a beacon at night, when the facility is most active. The color also gives a sense of speed, an apt association for people too time-pressed to shop at the nearby mall.





Raveau House, Santiago

Hugging a steep, eroding slope in the foothills of the Andes, this house sits on a grouping of 60 steel piles. Perched several hundred feet over the Mapocho River, the board-formed-concrete and pine house is divided into two horizontal volumes, one for living and one for sleeping, that intersect [illegible]

WORK Architecture Company draws strength from diverse perspectives

By Clifford A. Pearson

Firm: WORK Architecture Company
Location: New York City
Founded: 2002
Design staff: 14
Principals: Dan Wood, AIA, and Amale Andraos
Education: Wood: Columbia, M.Arch., 1992; University of Pennsylvania, B.A., 1989; Andraos: Harvard, M.Arch., 1999; McGill, B.Arch., 1996
Work history: Wood: Practice—OMA, Rotterdam and New York, 1993–2002; Keenen/Riley, New York, 1991–92; Academic—Ohio State, 2006; Princeton, 2004–present; Cooper Union, 2004–05; Andraos: Practice—OMA, Rotterdam and New York, 1999–2002; Atelier Big City, Montreal, 1996–97; Academic—Harvard, 2005–present; Ohio State, 2006; Princeton, 2004–present
Key completed projects: *The Good Life* exhibition, Van Alen Institute, New York City, 2006; D'Amelio Terras Gallery, New York City, 2006; 7 Essex Street Loft, New York City, 2005; Lee Angel offices and showroom, New York City, 2004; Creative Edge Parties offices and tasting room, New York City, 2004; Isaac Mizrahi for Target store, New York City, 2003; *Big Love* stage set, Dallas Theater Center, Dallas, 2002
Key current projects: Anthropologie stores, Dos Lagos, Calif., Shrewsbury, N.J., and Nashville, Tenn., 2006–07; Diane von Furstenberg Studio headquarters, New York City, 2007; Eden Lun showroom, New York City, 2007; Creative Time offices, New York City, 2007; White Street Residence, New York City, 2008; BAM Cultural District master plan, 2010
Web site: www.work.ac

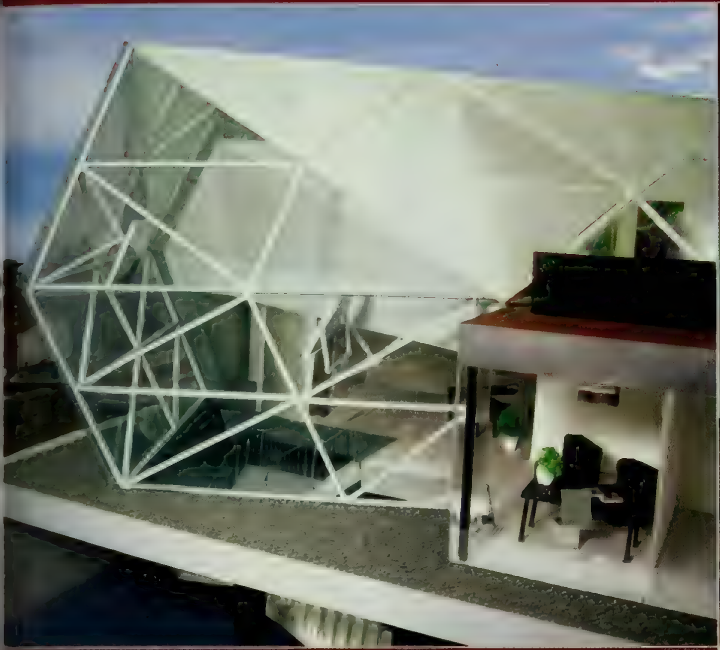
Having worked on major projects such as the Seattle Public Library, Prada flagship stores, and the master plan for Universal Studios in Los Angeles while at Rem Koolhaas's Office for Metropolitan Architecture (OMA), Dan Wood, AIA, and Amale Andraos knew they would have to downshift scales when they opened their own firm, WORK Architecture Company, in 2002. But they had no idea that their first commission would be a doghouse. Undeterred, they applied their notions of creative programming, intense research, and collaborative design to developing a canine residence that would be auctioned to raise money for an organization called Puppies Behind Bars. Rethinking the function of a doghouse (typically just a place for a pooch to sleep), they designed a high-tech Villa Pup where an urban Fido can run on a treadmill while watching videos of chasing cars and catching Frisbees. They even added an odor machine to provide the lucky dog with all of the smells of such activities.

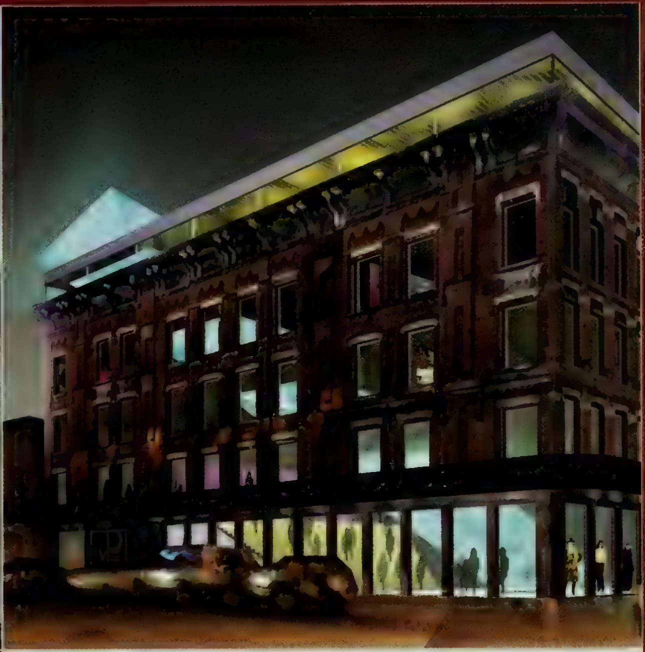
Since then, the husband-and-wife team of Wood and Andraos has moved up the architectural food chain and is designing a six-story headquarters and retail complex for Diane von Furstenberg in Manhattan's newly hip Meatpacking District, three stores for the Anthropologie retail chain, the master plan for the Brooklyn Academy of Music (BAM) Cultural District, and several lofts for wealthy clients. They have also entered major design competitions, including one for a "green-belt city" in Las Vegas that is not going forward, and one for a cultural complex in the central Chinese city of Xian that should be decided soon. As they did at OMA, Wood and Andraos start every project with an intense examination of program—pulling it apart, reassembling it in different ways, and imagining new components. "We're interested in the world of ideas," says Wood, "but ideas made physical." This emphasis on building, not just theory, generated the firm's name. "We wanted to define ourselves through what we do, through the work itself," explains Andraos.

From their studio on Manhattan's Lower East Side, Wood and Andraos are working mostly locally, but thinking globally. Wood comes from Rhode Island, but has lived in Paris and Rotterdam. Andraos was born in Beirut and has lived in Saudi Arabia, Canada, France, and Holland. Their 12 employees come from places such as Denmark, Germany, Switzerland, Korea, Spain, and Australia. "We see difference as a strength, as a source of ideas," states Wood. Both of the principals teach and see their academic work as a critical part of their practice. Not only do they use their teaching studios to research topics such as eco-urbanism that they apply in their practice, but they stay connected with other young architects who are also teaching. Comparing themselves to their contemporaries, Wood says with a laugh, "We're boxes, not blobs."

With Andraos's roots in the Middle East, she and Wood have traveled to Beirut and Dubai. "There's a lot at stake in these places—for cities, for cultures coming together," she states. She and Wood hope WORK can contribute to that convergence. ■

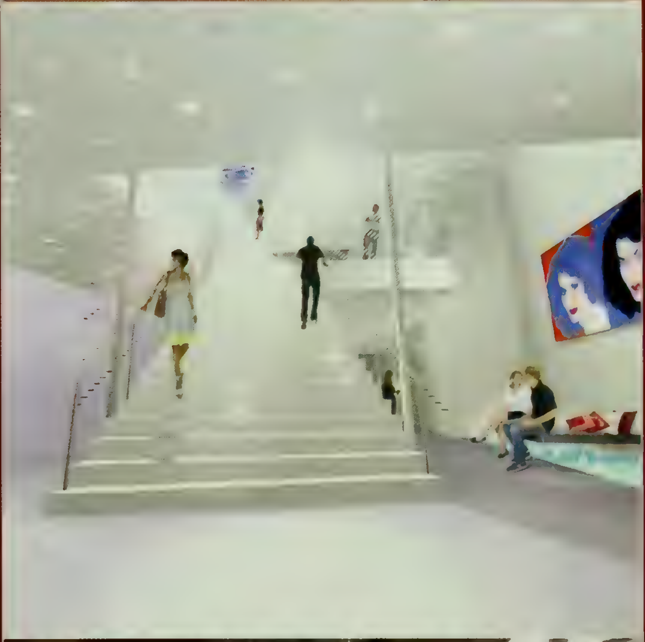
Auctioned for charity, Villa Pup allowed a lucky city dog to run on a treadmill and watch rural scenes.

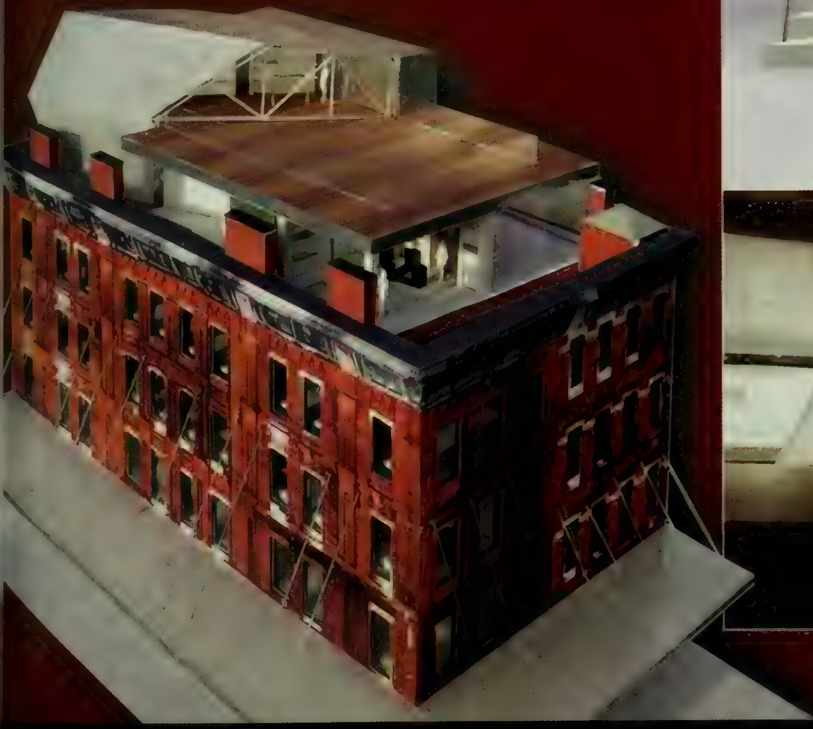




DvF Headquarters, New York City

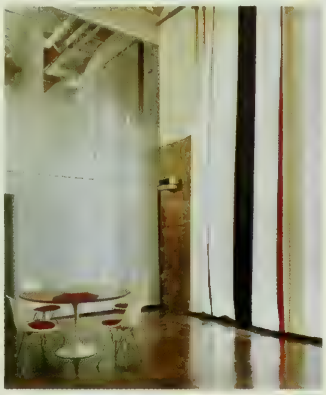
Set within a pair of old buildings in the Meatpacking District, this project for Diane von Furstenberg Studio will include offices and design studios for the fashion company, a showroom, a ground-floor store, and a "diamond" penthouse for meetings. A grand stairway acts like a shaft of light from the roof to all of the floors and unifies the diverse program. The stair's guardrail, strung with Swarovski crystals, inspired WORK to dub it a "stairdelier."

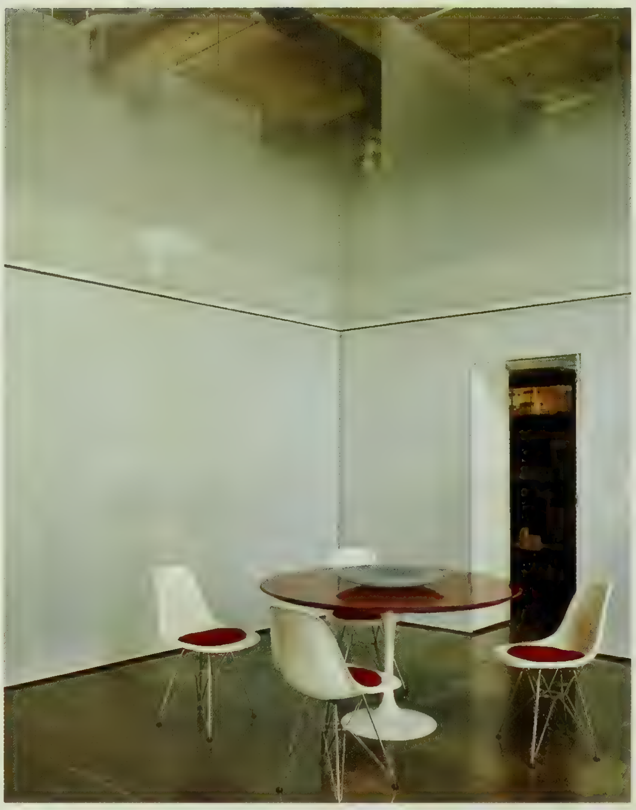




Creative Edge Catering, New York City

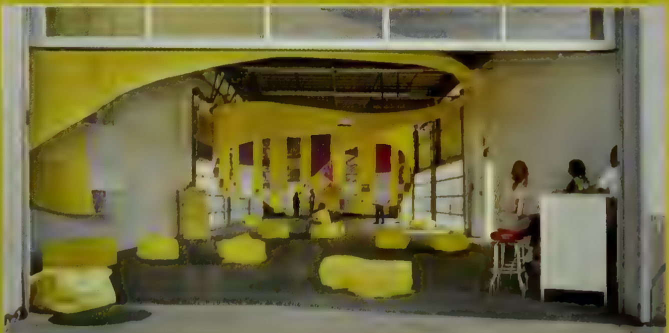
Renovating the company's space in a historic building in Greenwich Village, WORK expanded its offices on a mezzanine, but had to reduce the size of its two-story tasting room. To accommodate parties of different sizes, the architects put two of the tasting room's walls on wheels so the space can open onto a circulation area. They also used a silk-screened frit pattern on glass walls that makes the surface opaque at the bottom and transparent above.

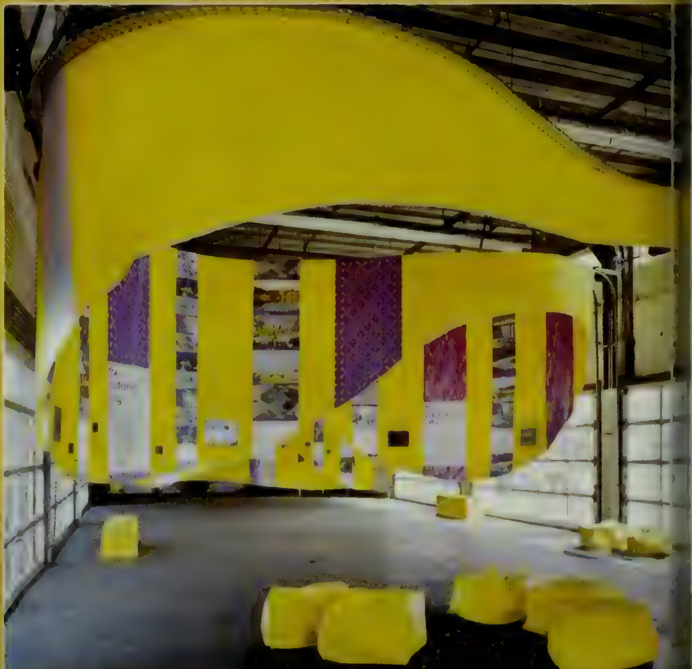


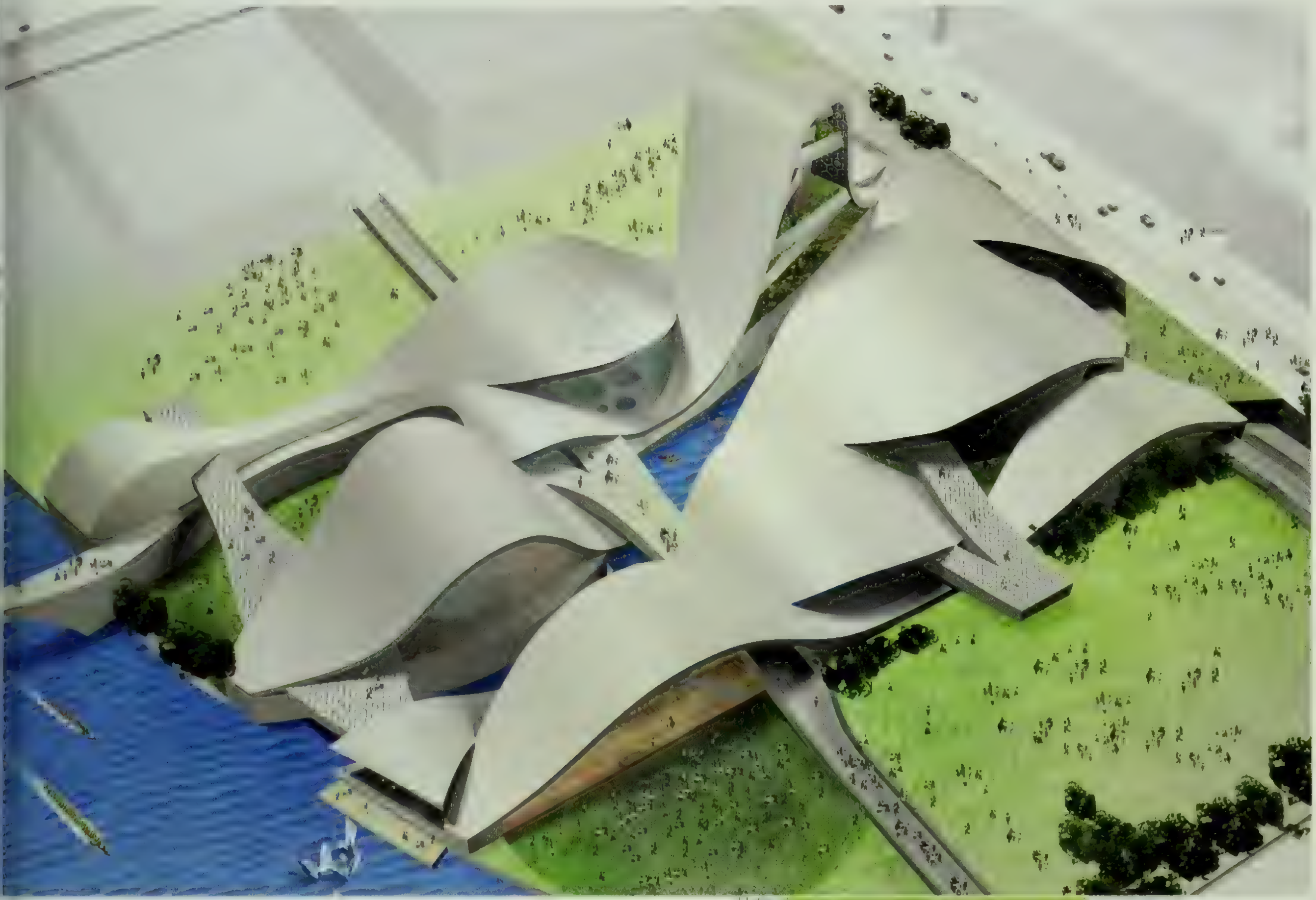


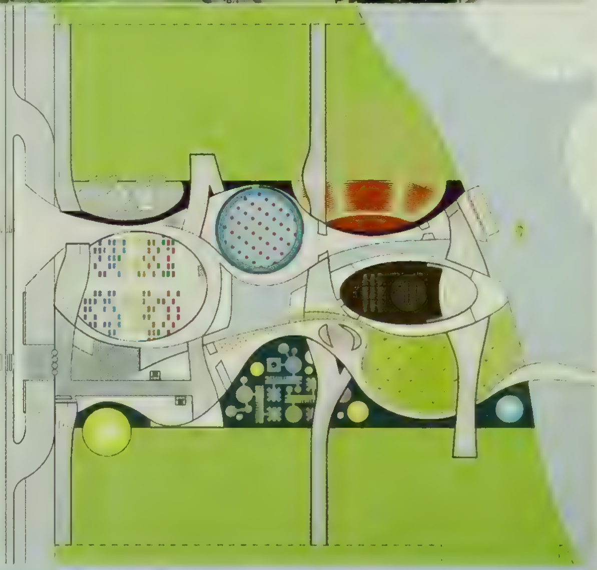
The Good Life, New York City

For an exhibition mounted by the Van Alen Institute at Pier 40 on the Hudson River, WORK designed a 300-foot-long piece of fabric that curved to create five separate areas for display, lounging, and special events. Suspended from the ceiling, this so-called "wiggle" combined bright yellow canvas and printed vinyl panels containing information graphics on 70 urban projects.



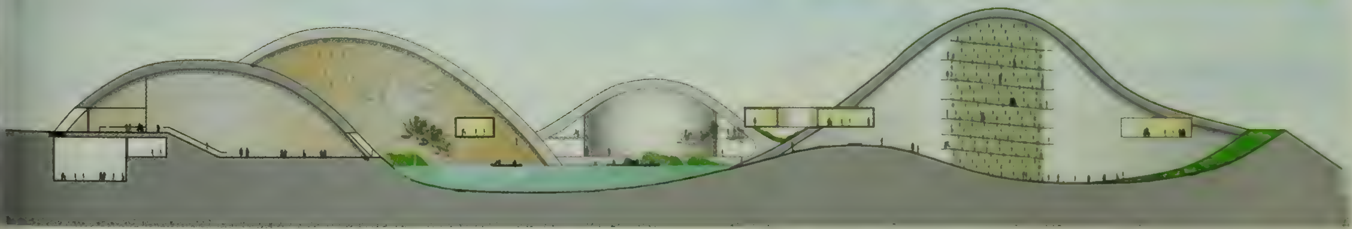






New Silk Road Cultural Center, Xian, China

A competition entry for one of nine cultural centers in a park celebrating the various peoples who traveled along the old Silk Road, this design weaves together space and time. WORK's entry for the Western Turkish facility envisions an unfolding timeline with four bands representing the major epochs in the history of Turkey overlayed with a series of threads marking iconic programs of Turkish culture—the spa, the traveler's hotel, the bazaar, the education center, and the amphitheater.



In the Netherlands, **SeARCH** seeks solutions that are imaginative and muscular

By Tracy Metz

Architect: SeARCH
Location: Amsterdam
Date founded: 2002
Design staff: 32
Principals: Bjarne Mastenbroek, Uda Visser, and David Gianotten
Education: Mastenbroek: Technical University of Delft, M.Arch., 1989; Visser: Technical University of Darmstadt (Germany), M.Arch., 1996; Gianotten: Technical University of Eindhoven, M.Arch., 1998
Work history: Mastenbroek: Practice—Architectengroep, 1993–02; Van Gameren Mastenbroek architecten, 1991–93; Enric Miralles & Benedetta Tagliabue, Barcelona, 1990–91; Mecanoo architecten, 1988–90; Academic—Academie of Architecture, Amsterdam, faculty, 1992–93; Technical University of Delft, faculty, 1991–92; Visser: Architectengroep, 2001–02; Mecanoo architecten, 1988–90; Gianotten: Gideon Consult, 2002–05; van Keulen & van Zutphen, 2000–02; Projectbureau Leidsche Rijn, 1998–2000
Key completed projects: Scherf 13 housing, Utrecht, 2006; Schijf housing, Utrecht, 2006; Westergasfabriek clubhouse, Amsterdam, 2006; Dutch Embassy, Addis Ababa, Ethiopia, 2005; Wolzak House, Zutphen, the Netherlands, 2004; K-buurt urban planning, Amsterdam, 2003; Posbank Pavilion, Rheden, the Netherlands, 2002
Key current projects: Urban planning for office and commercial complex, Leuven, Belgium, 2010; 215-apartment complex, The Hague, 2007; apartment and retail complex, Almere, the Netherlands, 2007; 130 single-family houses, Rotterdam, 2007
Web site: www.searcharchitects.nl

No one-liners, no corporate office buildings, and no single, defin able style. When you discuss SeARCH, the 32-person firm founded and led by Dutch architect Bjarne Mastenbroek, you talk as much about what it does not do as what it does do. "Rarely do w work on a tabula rasa," Mastenbroek says firmly. "Ninety percent of ou projects are transforming existing buildings, or new construction o existing sites. That is the Dutch way: We're good at refurbishing an remodeling what has gone before."

Like the principals of BAR Architects, the other Dutch firm i this year's Design Vanguard, Mastenbroek first drew attention with winning project in 1991 for Europan, the Europe-wide competition fo new talent. With his then-business partner Dick van Gameren Mastenbroek designed an apartment building for the Dutch city o Nijmegen with rooftop parking, a novel concept at the time. After a fe years at a large firm, Architectengroep, Mastenbroek launched SeARCH (Stedenbouw en Architectuur) in 2002.

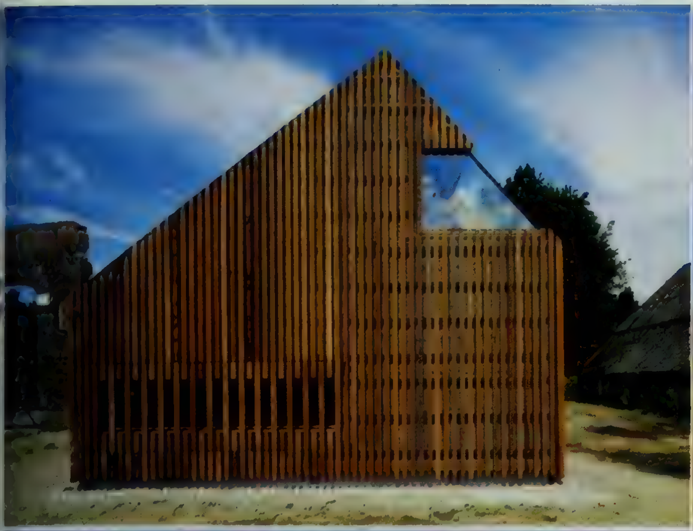
Mastenbroek is passionate about the need to conserve the coun try's cities and the open space around them by building within or at th edge of the existing urban fabric. "Not only bigger cities like Amsterdam and Rotterdam, but middle-size ones are expanding outward," he says "Sprawl is great for the individual, but disastrous for the collective."

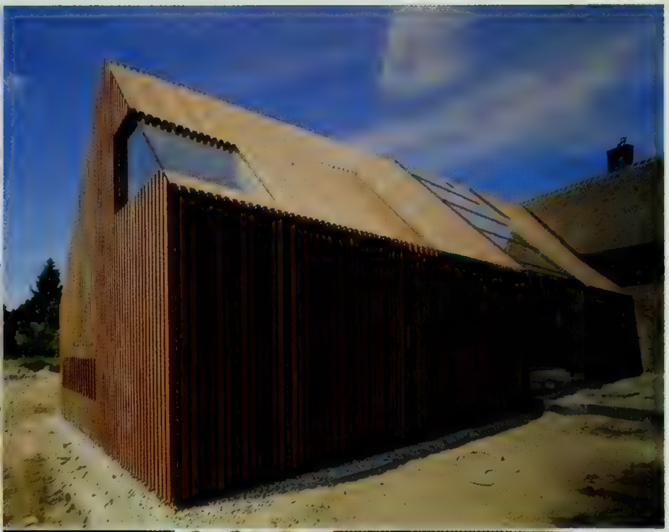
No surprise, then, that the firm is focused on several housin projects. "The housing market here has been privatized, and architect who want to build anything out of the ordinary really have to invest a inordinate amount of time and effort in persuasion," Mastenbroek says "Many firms have given up courage and begun building 1930s-style villas The market for neotraditional styles seems to be insatiable, but I feel tha housing is too important for Holland to give it up."

The firm's biggest housing project to date is in Leidsche Rijn outside Utrecht. The program called for a traditional apartment buildin of eight floors with parking behind it. SeARCH shifted the component around, opting for two three-level blocks with all the parking beneath This plan freed up room for a courtyard between the two boomerang shaped structures, and doubled the capacity of the garage.

A different take on housing was the renovation and expansio of an old farmyard's scattered outbuildings into a single-family (non farming) residence. Here SeARCH shows it has a good feel for adaptin historic buildings. The roof of the original house remains thatched, but livestock barn was replaced with a skewed extension covered with timbe lathes from its steeply pitched roof down to the ground. The means ar simple and the results legible without seeming banal.

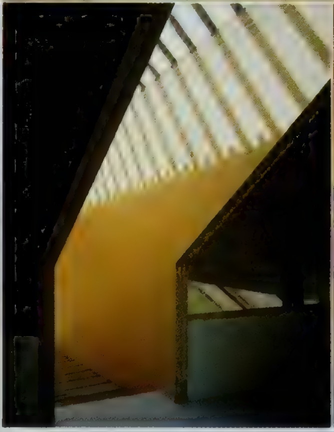
Now under construction are several schools and a museum fo regional culture and textiles in Enschede, near the Dutch-German bor der. The site's context was literally blown away when a local firework factory exploded in 2000. The museum is part of the city's attempt t recover some of the local culture lost in the accident. Here you see ho SeARCH excels—fitting a complex program into a context in a way tha is sensitive, imaginative, and nonliteral. The team's architecture is mus cular but compassionate, complex but uncluttered. ■

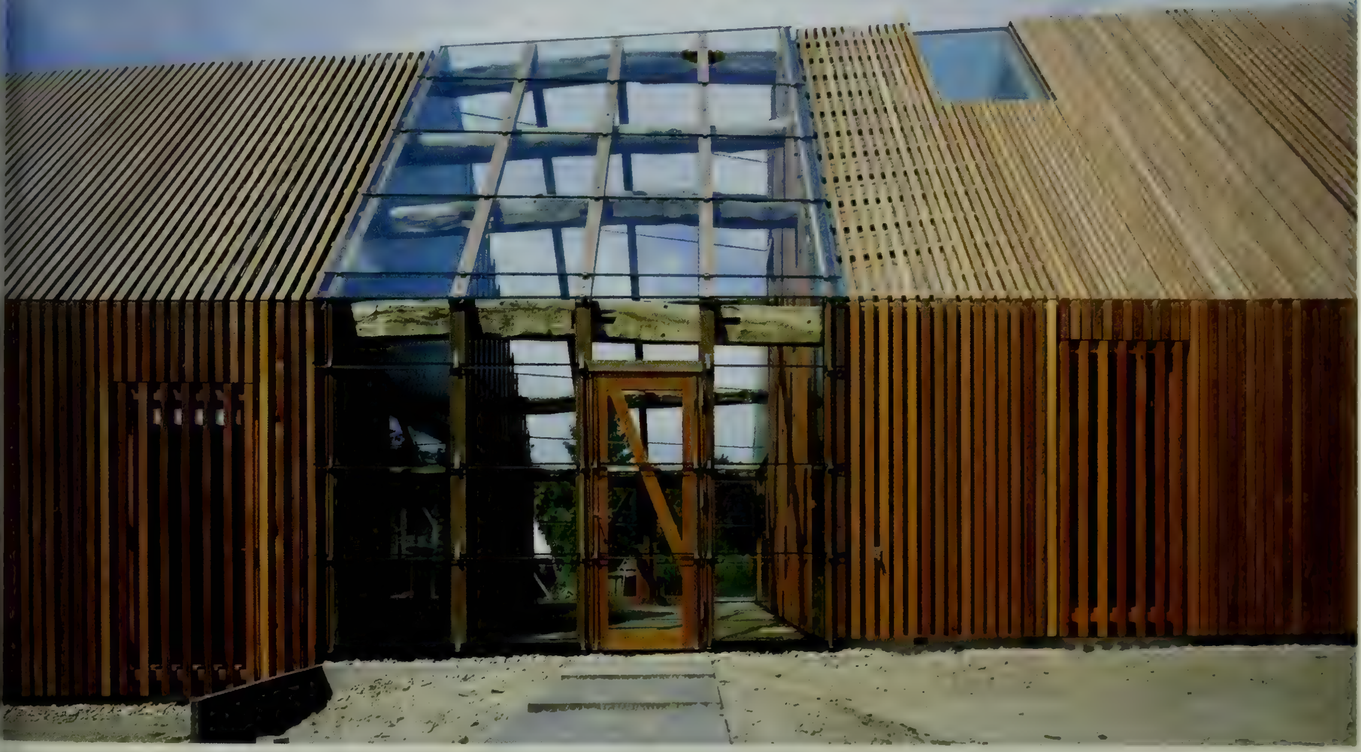




Wolzak House, Zutphen, the Netherlands

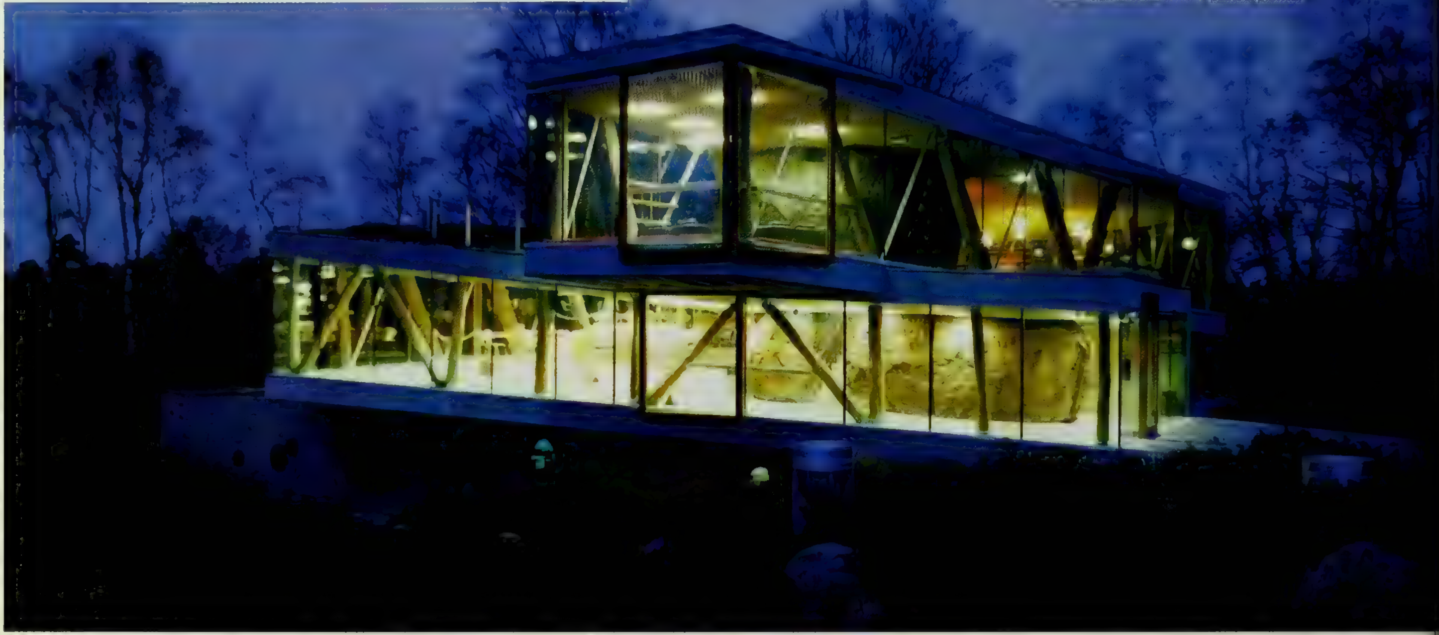
A farmyard with various outbuildings was adapted and expanded as a single-family house. The livestock barn that formed the stem of a traditional T-shaped farmhouse was replaced by a new, skewed volume with a distorted "pulled and dragged perspective," says principal Bjarne Mastenbroek. The new extension abuts the opening left by the removal of the original barn, visually retaining the T shape. The load-bearing construction of the new building consists of prefabricated wood plates.

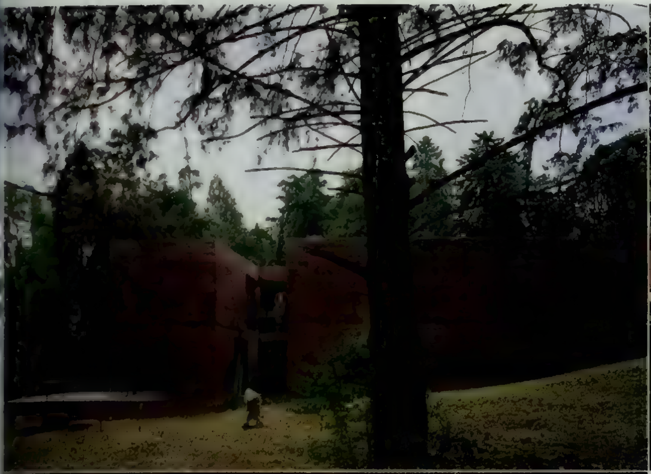


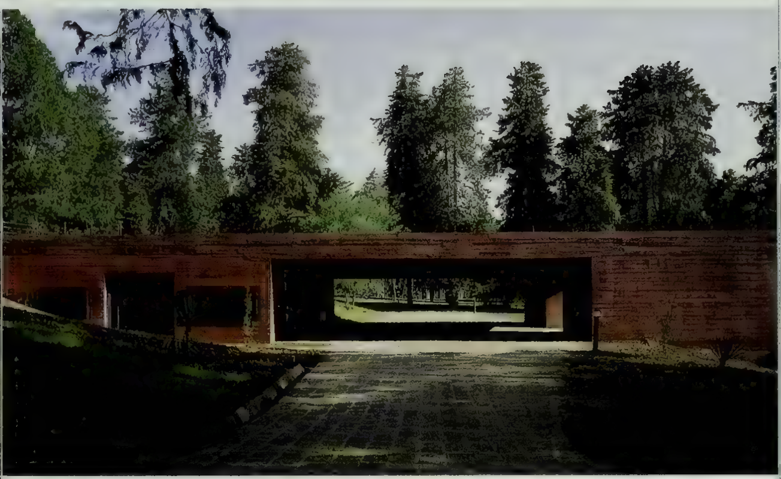


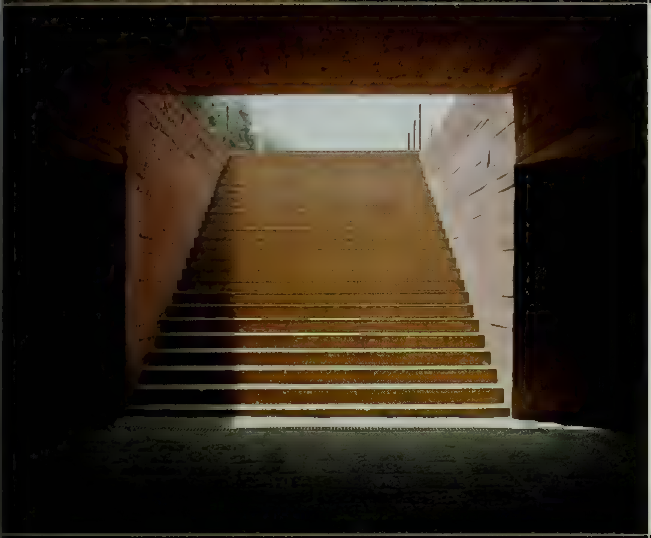
Posbank Pavilion, Rheden, the Netherlands

This teahouse set in Veluwezoom National Park is energy-efficient while remaining transparent to its natural surroundings. The building is situated at the end of a range of hills formed in the last Ice Age. From the entrance, the floor rises in a continuous spiral that wraps around a group of trees, culminating in a 45-foot cantilever. The materials include steel, glass, and solid oak, with a large boulder supporting the structure at a pivot point.



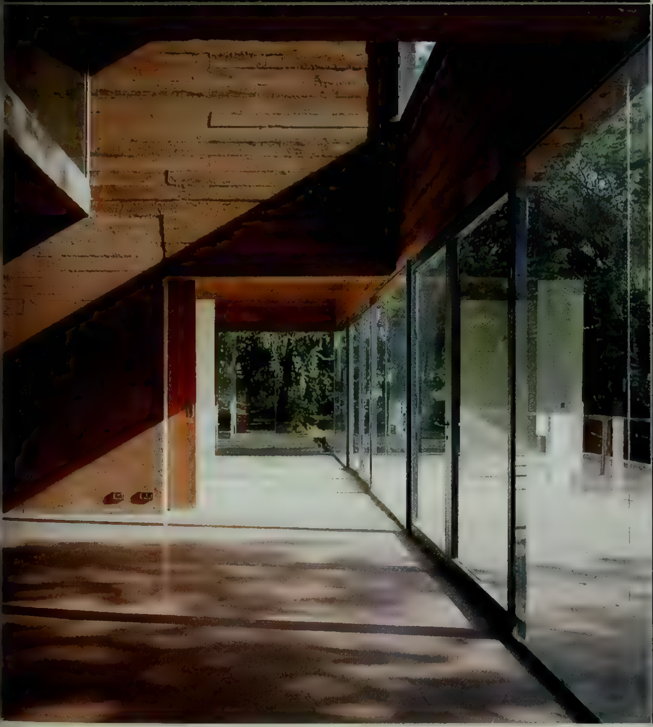


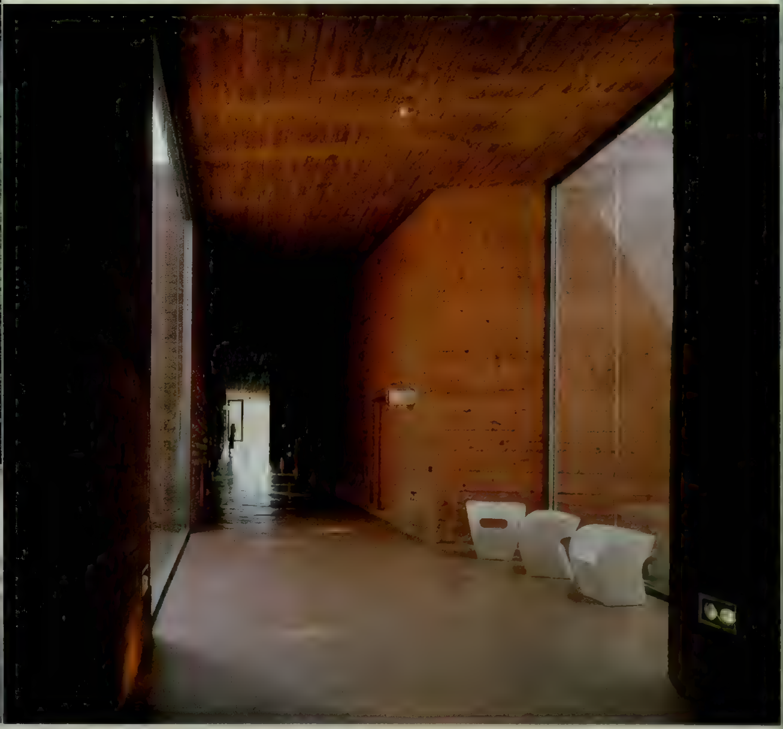


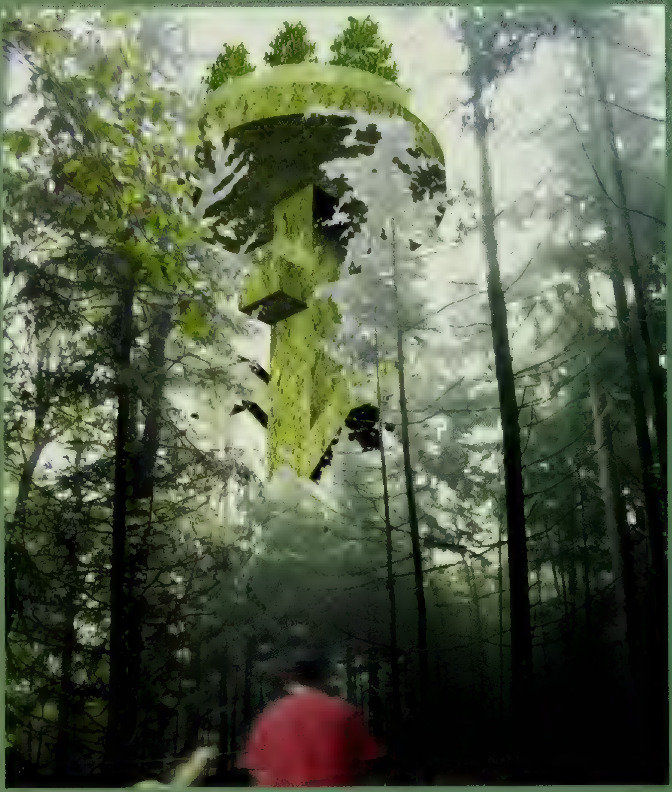


Dutch Embassy, Addis Ababa, Ethiopia

On a sloped, wooded site, the compound accommodates a chancellery, residences for the ambassador and deputy ambassador, three staff houses, and a school. The horizontal volume of the main building encompasses the ambassador's residence and chancellery. Its roof is constructed as a shallow pool, with reliefs depicting the Ethiopian cross and a model of the Dutch landscape. An interior corridor slopes to follow the natural terrain.





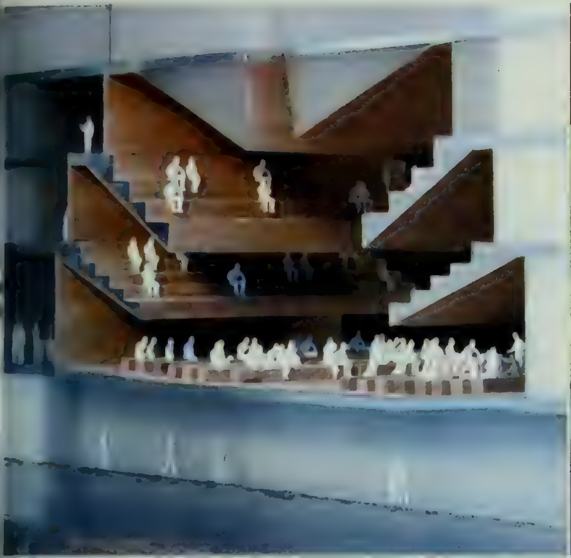


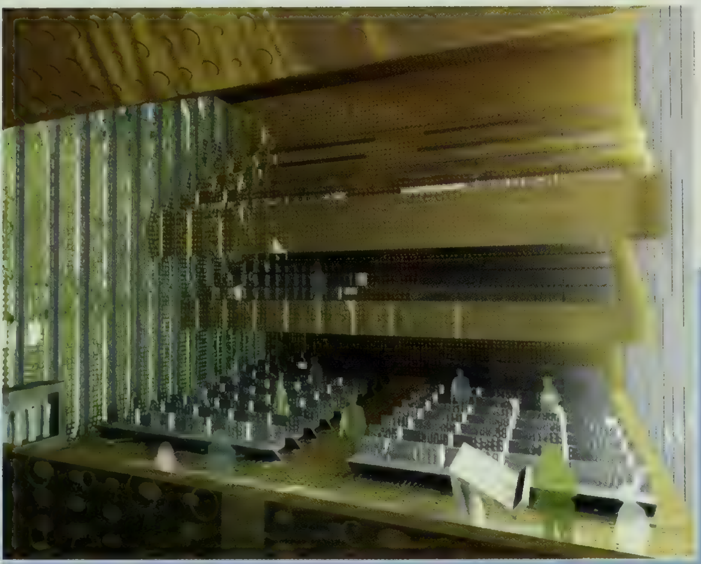
Schovenhorst Observation Platform, Putten, the Netherlands

An observation platform overlooks the plantings of the Schovenhorst Estate, a horticultural center showcasing the tallest Sequoias in the Netherlands. The structure features "branches" that offer visitors varying activities and perspectives along the ascent. A tunnel connects two sides of the property bisected by a road. The embankments on either side of the path fold in toward each other underground.

Residences, Floriande, the Netherlands

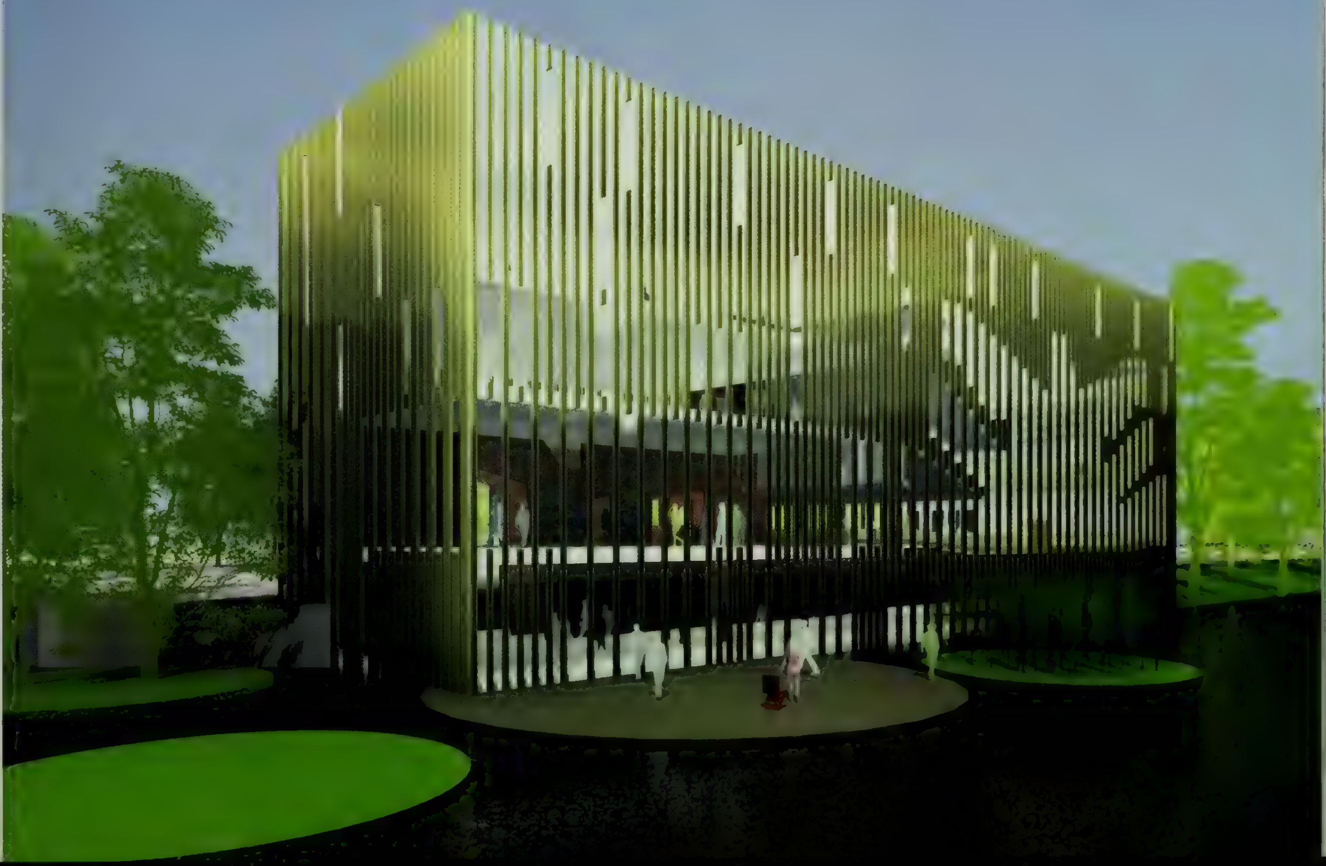
These multifamily residences are located on the seventh in a series of 12 contiguous islands that form the Dutch community of Floriande, adjacent to the city of Hoofddorp. Housing blocks flank the long sides of a village green planted with 400 maple trees. The prefabricated, timber-framed houses are oriented toward individual gardens and the waterfront. Cars are parked beneath cantilevered bedrooms.





Synagogue, Amsterdam

A synagogue for one of Amsterdam's Jewish congregations, the first new one built in the city in 43 years, will feature a large central auditorium with low extensions on each side underneath two-tiered balconies. The arrangement of the side spaces, the four balconies, and the central void are meant to suggest the form of a menorah, the seven-armed candelabra.



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Artful Lodgers

Across the globe, in places as varied as the remote reaches of Patagonia and tiny villages in Europe, new hotels are catering more and more to market niches.

MARQUÉZ DE RISCAL HOTEL

Elciego, Spain

With a veritable landscape of colorful titanium streamers, Gehry Partners animates a swath of Spanish vineyards with a hotel geared toward winery and architectural tourism.

HOTEL REMOTA

Patagonia, Chile

Along a sea channel in South America, architect German del Sol's buildings frame a panorama of spectacular terrain, while providing a rustic-luxe base for hikers.

THE OUTPOST

Kruger National Park, South Africa

Enrico Daffonchio builds a lodge that not only offers visitors intense and direct experiences with wildlife, but also returns ancestral lands to a local tribal community.

GRAMERCY PARK HOTEL

New York City

Ian Schrager's team refurbishes a faded and shabby 1920s hotel, targeting a hip clientele with a taste for eclectic, baroque styling.

or more information on these projects, go to Building Types Study at
rchrecord.construction.com.

By Sarah Amelar

Wine Therapy," where guests soak in a vintage concoction that promises to curtail the skin's aging process, is one offering at Frank Gehry's new Marqués de Riscal hotel and spa, set amid the vineyards of Elciego, Spain. The wine bath, rich in antioxidants, may be the font of eternal youth (or not), but it's also a sign of a recent hotel trend toward heightened specialization. Sure, the general-interest hotel is still alive and well, especially in major cities endowed with visitors. For such destinations, the motto might as well be: Build it, and they will come. But all sorts of places—especially far-flung, complicated-to-reach, and otherwise challenged or obscure ones—are spawning specialization.

Clearly, Gehry's hotel is targeting winery tourists (reportedly a growing demographic), plus the architectural crowd. After all, the Bilbao effect was born only 68 miles down the road, where Gehry's Guggenheim transformed the exceptionally drab city of Bilbao into a tourist magnet.

Continents away, in South America's southernmost reaches, the aptly named Hotel Remota caters to people who want to trek Patagonia's extraordinary landscape by day, but enjoy rustic-luxe amenities by night. The hotel specializes in hiking packages. Patagonia may be an in-your-wildest-dreams destination, but the hotel, with its remarkable serenity and landscape-embracing forms, could become a destination in its own right.

The Outpost, another lodge whose name epitomizes its location, is tucked into a remote region of a South African national park. With minimal presence in the landscape, the architecture maximizes views out (unmediated by glazing). Here, as guests shower in cantilevered tree-houselike quarters, free of exterior walls, they can simultaneously enjoy privacy and overlook the vast bush, thick with lions, leopards, elephants, and other wild creatures. Unlike "choreographed" safaris with 17-hour days on regimented jeep rides, the more low-key Outpost encourages guests to see the animals and even walk the bush (with guides), but also simply relax. It may be one of the few places where you can, in effect, be naked with the great beasts.

But back in the urban jungle, what about hotels in prime Manhattan territory? You'd think the city's tony allure and reported lodging shortage would quash any call for specialization. But competition for high-paying clients can produce niche players. The new Gramercy is targeting a hipper-than-thou crowd, which, the owners evidently hope, is already dissing the global Minimalism of boutique hotels as "so yesterday." Banking on the A-list's insatiable craving for a new look, the owners have gone Goth-soft.

Sometimes specialization is only skin deep, but in whatever form, it's cropping up in small European villages, in the wilds of Chile and South Africa, and even in the overheated limelight of downtown New York. ■

One: MARQUÉS DE RISCAL HOTEL

Elciego, Spain

Frank Gehry animates a 19th-century vineyard with dynamic forms and great unfurling ribbons of pink-and-gold-hued titanium.

By David Cohn

Architect: *Gehry Partners—Frank O. Gehry, FAIA, partner; Edwin Chan, design partner; Terry Bell, project partner; Andy Liu, project architect; Richard Barrett, Joejohn McVey, Colby Mayes, Guillermo Angarita, Albert Lee, Chad Dyner, Jonathan Rothstein, Dennis Vermeulen, project team*
Associate architect: *Idiom—Cesar Caicoya, Pilar Mateo, Eva Madariaga, Virginia Cañales, Muguel Angel Frias, project team*
Client: *Marqués de Riscal Winery*
Consultants: *Luis Camino (landscape); AG Licht (schematic lighting design); Javier Muñoz (interior furnishings)*

Size: *78,580 square feet (total, including annex); 32,185 square feet (main building only)*
Cost: *Withheld*
Completion date: *September 2006*

Sources
Titanium panels: *Nippon Steel Corporation (metal suppliers); Umaran (fabricator/installer)*
Lighting: *Belux (paper lamps); Van Lux (metal pendant and wall fixtures)*
Plumbing fixtures: *Roca; Vola*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

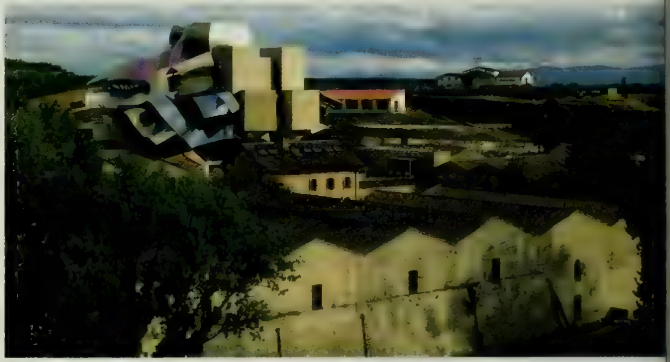
Before Frank Gehry's titanium-coifed boutique hotel arrived in the village of Elciego, at the heart of Spain's wine-growing La Rioja region, the town already had a landmark: the majestic 16th-century church, presiding over a picturesque valley. But while the church's paired towers shine as local highlights, Gehry's building is more of an international beacon, commissioned by the local Marqués de Riscal Winery to promote the growing international interest in Spanish wine.

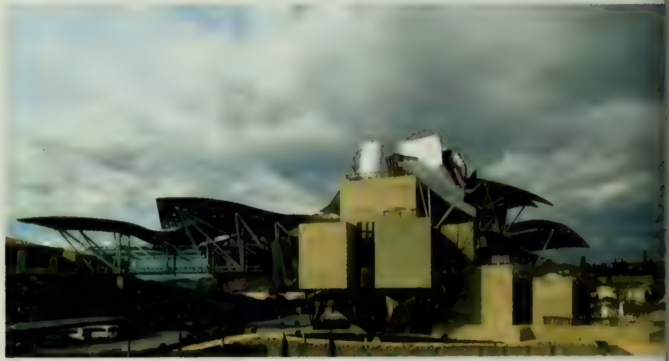
Program

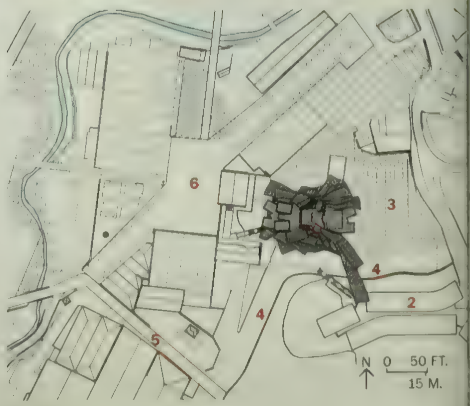
Set beside a stream at the edge of town, Marqués de Riscal is one of the region's oldest and largest wineries, with buildings dating to 1853. According to Edwin Chan, Gehry's design partner on the project, the client was initially interested in a "chateau for the 21st century, a kind of bed-and-breakfast for VIPs," as part of an overall modernization of its facilities. The project eventually grew to 27,000 square feet to include 43 guest rooms (14 junior suites in the main building and 29 rooms or suites in an annex, all managed by an international luxury chain), a wine-therapy spa, and a restaurant run by a local Michelin-starred chef.

Solution

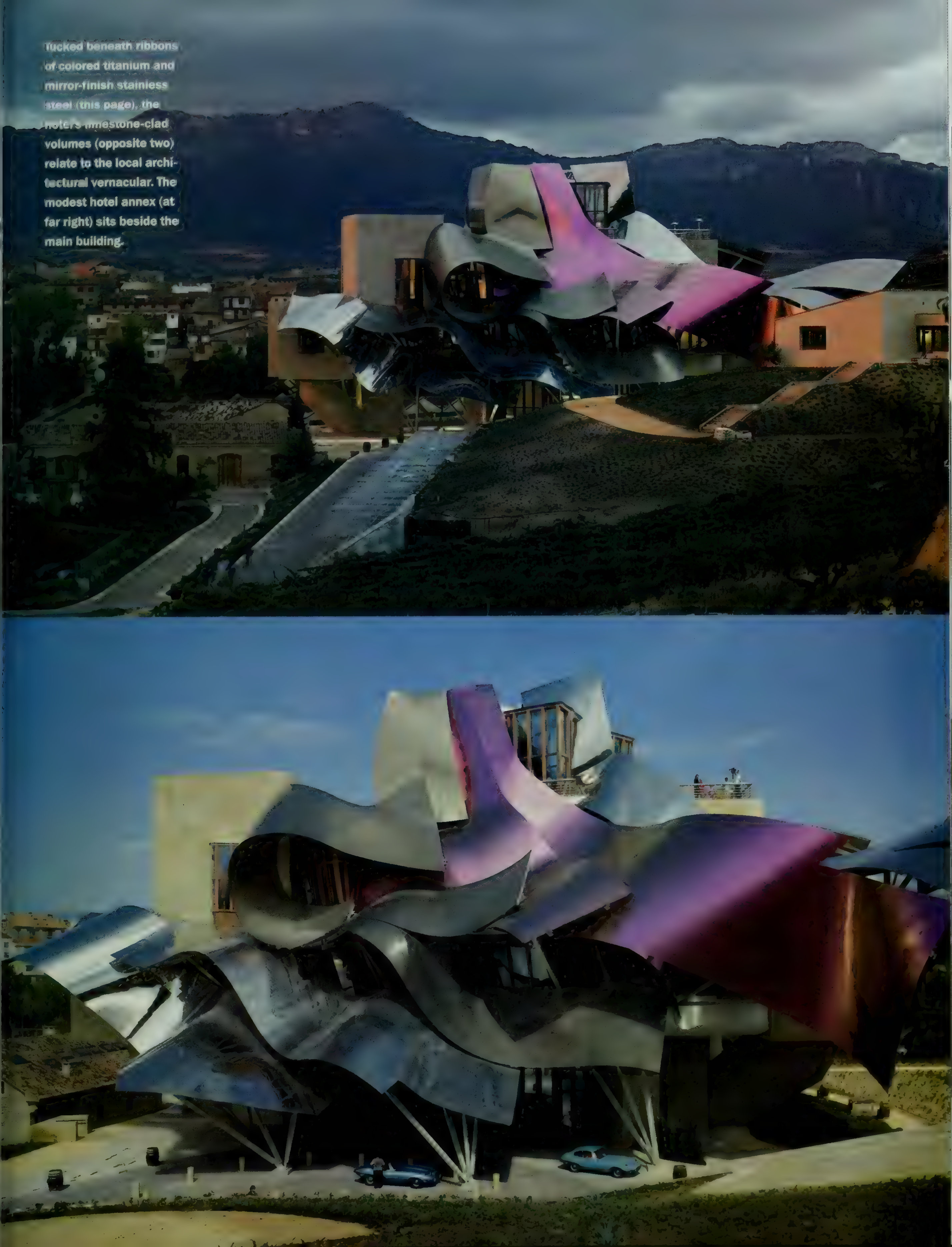
The hotel's site within the winery's compound was challenging. Set behind the historic stone factories



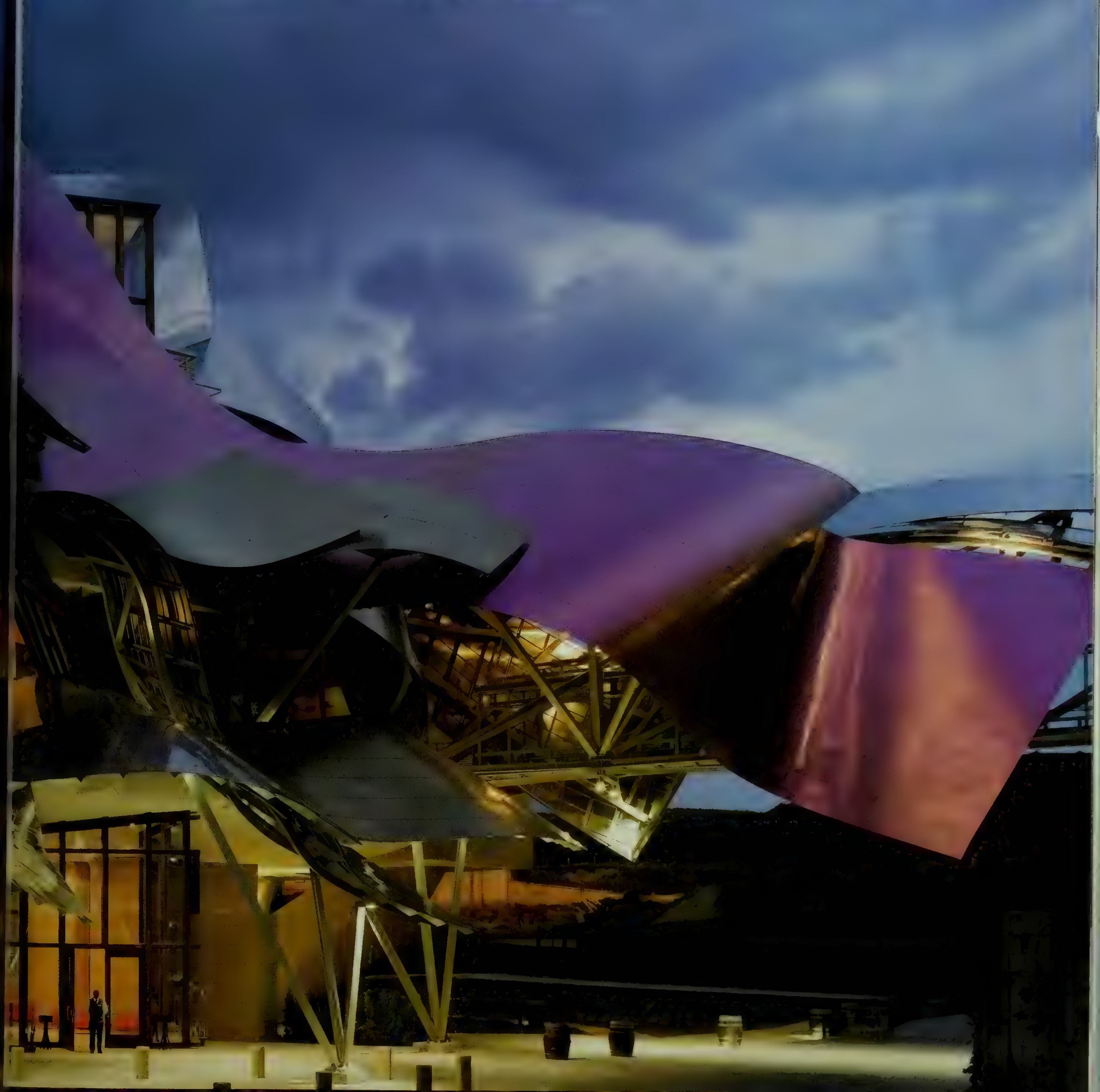




1. *Hotel (main building)*
2. *Hotel annex/spa*
3. *Vineyard*
4. *Parking*
5. *Access road*
6. *Plaza*

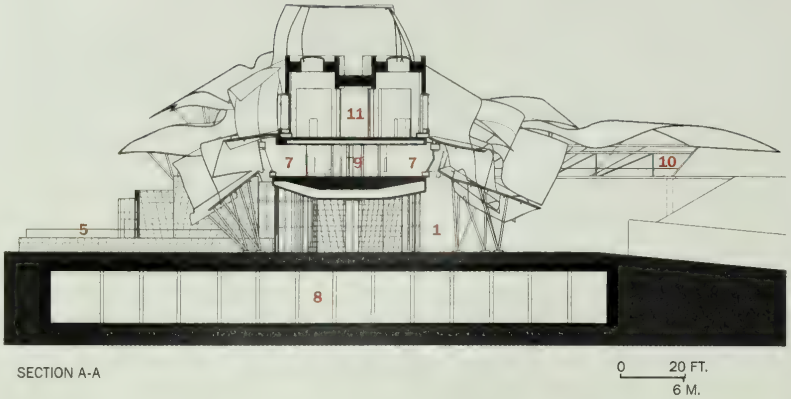


Tucked beneath ribbons of colored titanium and mirror-finish stainless steel (this page), the hotel's limestone-clad volumes (opposite two) relate to the local architectural vernacular. The modest hotel annex (at far right) sits beside the main building.



Titanium and steel sheeting forms whimsical, cascading canopies (on exposed steel supports), instead of actual cladding. Inspiration for the colors came from Riscal's wine bottles. A sketch by Gehry (left) conveys the design's uncorked exuberance.

The plans (below two) suggest the playful dynamism of the main building's 3D sculptural forms. A large wine cellar (section, left) lies under this structure, and a bridge, covered by great unfurling metal strips (left) leads to the annex, which houses the spa and most of the guest quarters.



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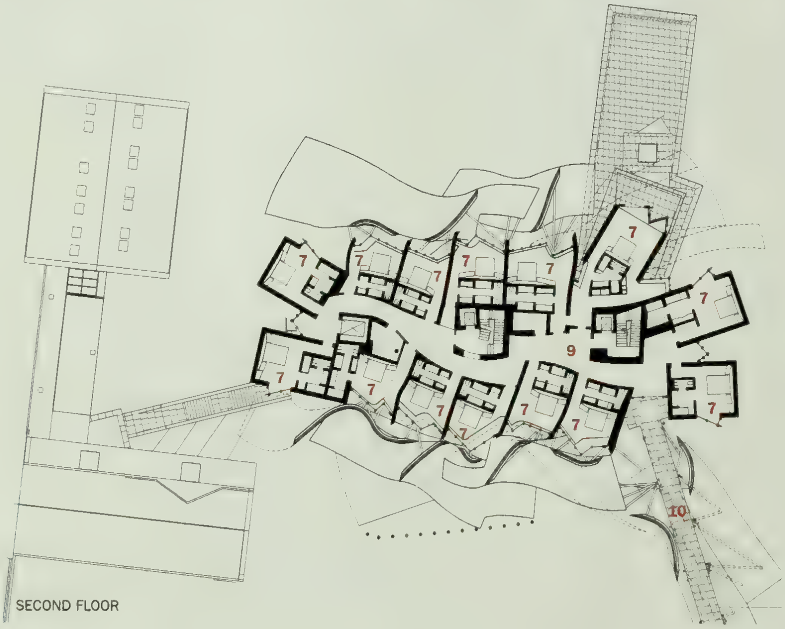
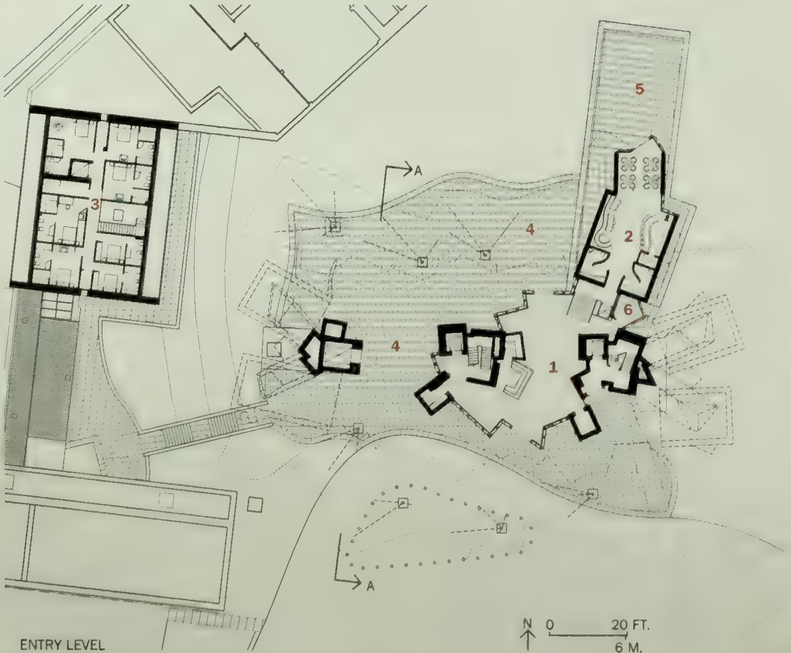


SECOND FLOOR



ENTRY LEVEL

1. *Reception/lobby*
2. *Bar/multipurpose*
3. *Preexisting winery guesthouse*
4. *Covered terrace*
5. *Terrace*
6. *Manager's office*
7. *Bedroom*
8. *Wine cellar*
9. *Corridor*
10. *Bridge to annex*
11. *Dining room*

and backed by a steep hill, the new building does not nestle into the vineyards; instead, it stands over a paved plaza that covers a new bottle cave (accessible by direct elevators from the hotel). Gehry's structure rises on three stone piers to capture views and assert its sculptural presence. Chan underscores the "friendly" relationship the architects sought with the church, pointing out that "as you approach the site, the church and winery form a dialogue across the valley." (Connections between old and new are also key to the client's marketing message.)

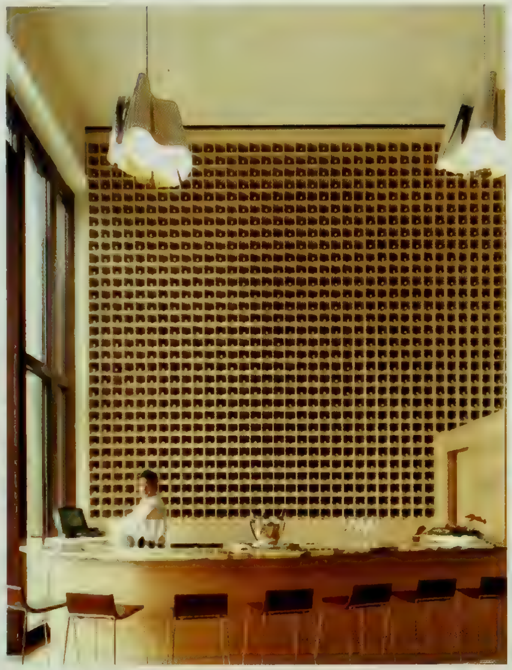
Views of the town and valley successively unfold as you ascend from the glazed lobby, with its wine bar and terrace, to the 14 junior suites on the next floor, the restaurant with its ample terraces above it, and the guest lounge with more terraces at the top. Seemingly casual stacks of rectangular volumes, clad in pale sandstone like the masonry of the church and village, house the interior spaces. Floor-to-ceiling wood-framed windows, many jutting from the corners of the volumes, peek out amid flowing rolls of mirror-finish stainless steel and pale gold-and-pink-colored titanium (hues inspired, the architects say, by the gold-mesh wrapper, silver cap, and purple contents of the company's bottles, and produced by passing titanium through an electric current in an acid bath). Exposed steel structures support these metal sheets, forming a capricious shading layer—a cascading succession of canopies—over the stone.

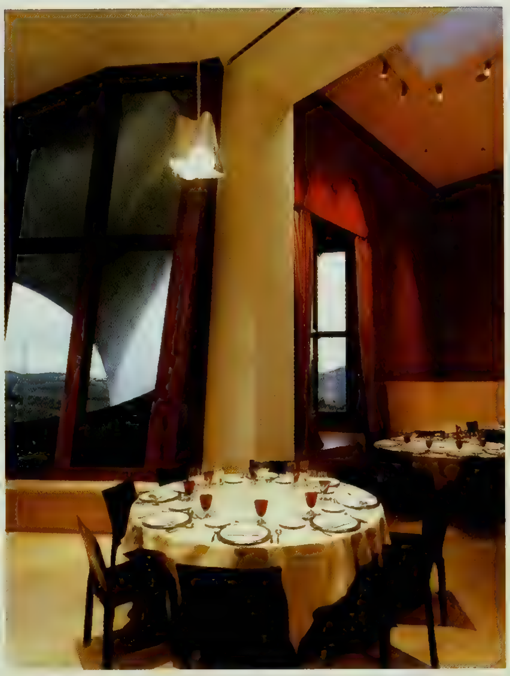
On the hilltop beside the main building, larger hotel suites and rooms, along with the spa, occupy e surprisingly nondescript stucco-ad annex, also designed by ehry. A spectacular covered glass-nd-steel bridge connects this nderstated building to the titanium-stooned structure. As Chan xplains, the annex draws on the ocal vernacular" of simple tile-ofed stucco volumes, rather than mpete with the main event.

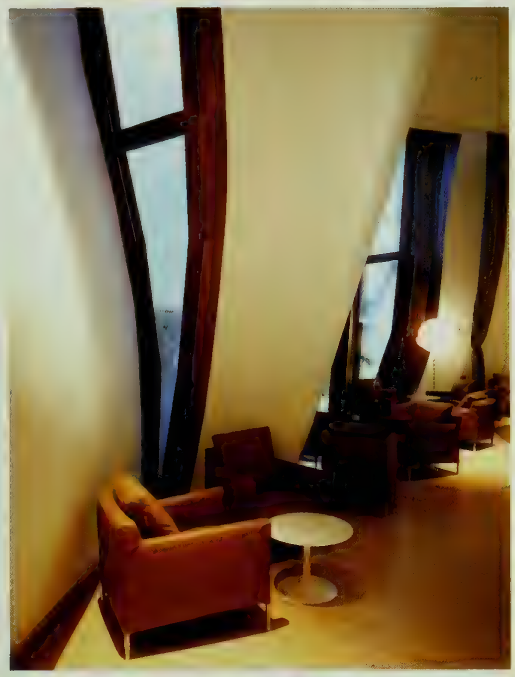
ommentary

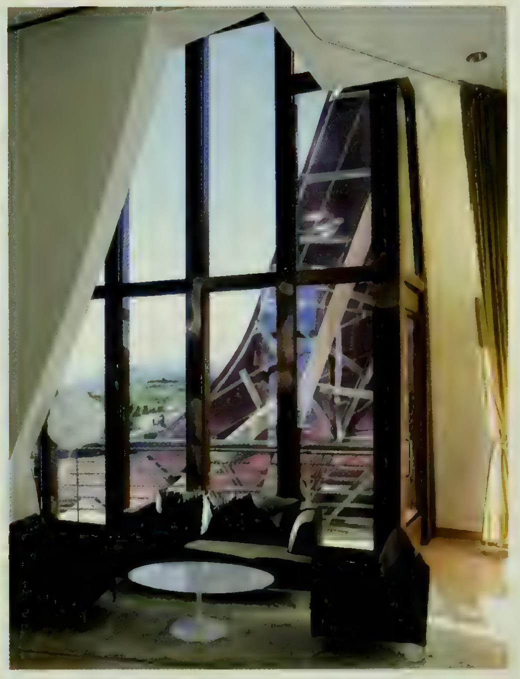
om certain vantage points in the llage and along the approach ad, the building's sculptural force pears compromised by site con-traints, but the unfurling rolls of ht-catching metal are stunning close range and fascinating from distance, constantly shifting with anging daylight and seasons. ith the titanium acting as a shad-g canopy rather than cladding s in previous Gehry work with e material), the sculptural effect ecomes free and dynamic; the ilding appears to unwrap itself ith the exuberance of a freshly ncorked wine bottle. Thrillingly otogenic, Gehry's luminous, fluid, nvulsive forms constitute an pdate of Elciego's church towers lighting up La Rioja for a contem-orary, media-defined world.

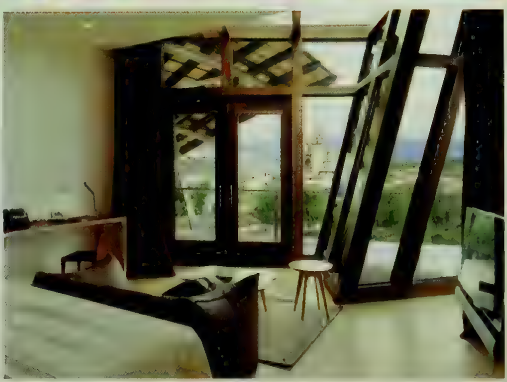
That said, the interiors do not lways live up to the expectations ised by the seductive packaging. e spare, white restaurant and uest lounge lack warmth. The otel corridor, with vinyl base-oards, bleached ash doors, and arpeting over hard concrete floors, eems as austere as a church wer's stone stair. The junior uites" are more like high-ceilinged lcoves, with king-size beds lopped in front of bay windows nd grand views—though the nishes, including green marble in e bathrooms, red velvet curtains, nd several custom light fixtures y Gehry, are fine enough. "Our mphasis is on the spatial experi-nce," says Chan. "We prefer the rchitectural details to be more atter-of-fact. It's a conscious hoice." As in a lighthouse or astle, such sacrifices have their ompensations. ■











The hotel bar features a gridded display of Riscal wines (top left). In the interior, the exterior's quirky forms express themselves in curving walls or shifting geometries and windows that curve to a point, pleat inward, and/or poke out, as in the dining area (top right), the lounges (above two), and the guest rooms (left). Overhangs and projections reveal the outermost layer's steel understructure (left and above right).

Two: HOTEL REMOTA

Puerto Natales, Chile

Germán del Sol captures the folk spirit and isolation of Patagonia, with architecture that envelops both guests and the landscape.

By Russell Fortmeyer

Architect: *Germán del Sol Architects—Germán del Sol, principal and project architect; José Luis Ibañez, Francisca Schüler, Rodrigo Arenas, Carlos Venegas*
Client: *Daniel and Juan Pablo González Correa Immobiliaria Fiordos del Sur*
Consultants: *Pedro Bartolomé (structural); Germán del Sol Architects (landscape, lighting, acoustics, interiors); Francisca Schüler (interiors); SALFA (general contractor); Guillermo Salinas Engineering; Francisco Arriagada Engineering*

Size: *56,000 square feet*
Cost: *$10 million*
Completion date: *December 2005*

Sources
Exterior asphalt membrane: *Asfaltos Chile*
Slate floors: *Porcelanato Chile*
Glass facades and windows: *Ventanas de PVC, Antonio Poncell*
Insulation panels: *Hechos por Salfa*
Furniture: *Germán del Sol Architects*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

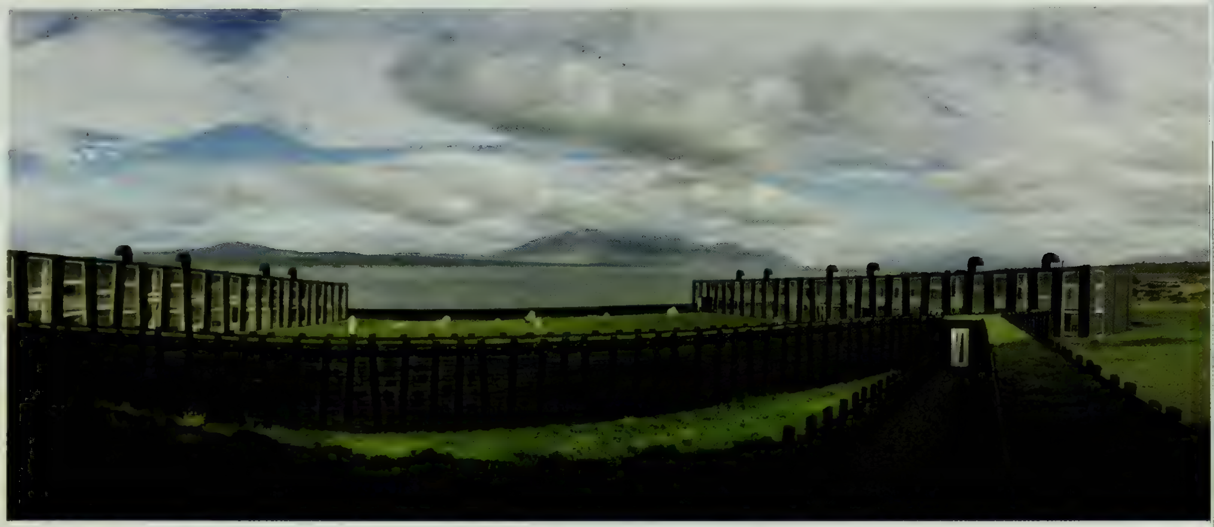
The Hotel Remota is for people who like their lattes made over a campfire. In a rugged and remote Patagonian landscape, outside Puerto Natales, Chile, the hotel beckons adventurous travelers with equal parts luxury and local folk style.

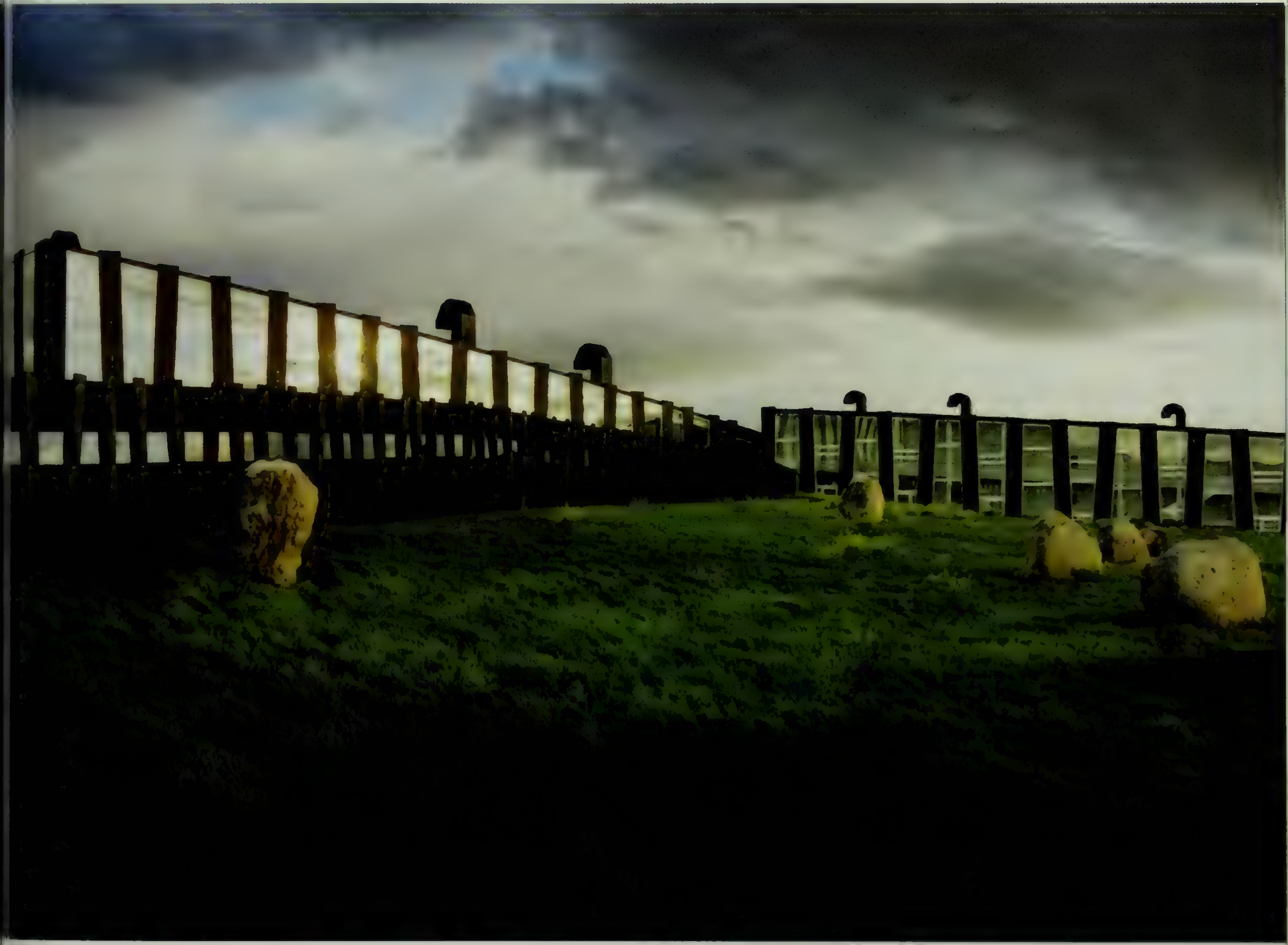
Germán del Sol, the Santiago-based architect behind Remota, has inadvertently cornered the market on luxe hotels in far-flung Chilean locales. His Hotel Explora in Atacama San Pedro [RECORD, November 1998, page 112] and its earlier sister property in Patagonia offer urbane accommodations in a region better known for sheep barns and rustic lodgings for visitors who prefer sleeping bags to down comforters.

Program

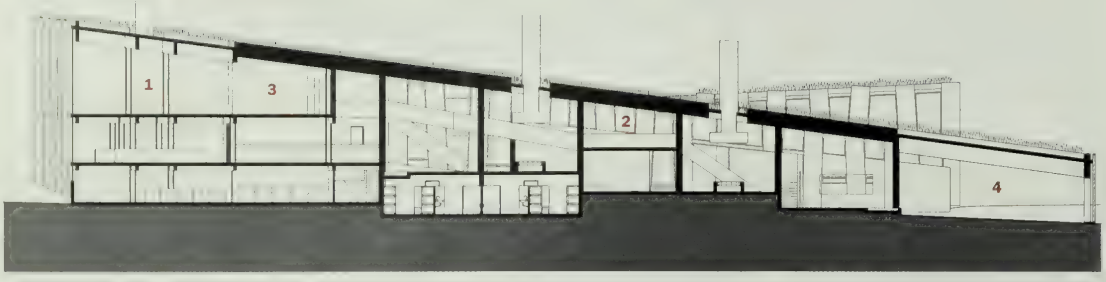
The 72-room hotel lies at the base of the Patagonian Mountains on a sea channel 125 miles from the Pacific Ocean. Much of the construction material arrived on-site by boat. Remota's 56,000-square-foot complex includes a dining room, bar, and spa. A Santiago family of recreational sailors and outdoorsmen, who also happen to have backgrounds in construction and engineering, developed the hotel. Del Sol's understanding of the area, backed by the four years he spent in the early 1990s trekking the nearby Torres del Paine National Park and environs, helped convince the client to build his formally unconventional, jagged design.

ıree long, partially ıclosed wooden corri- ›rs embrace a grassy ›urtyard and connect ıe two guest-room ıildings, the spa, and ıe main public building. ıe site's daytime color, ›t off by black struc- ıres, shifts between ›een and blue.

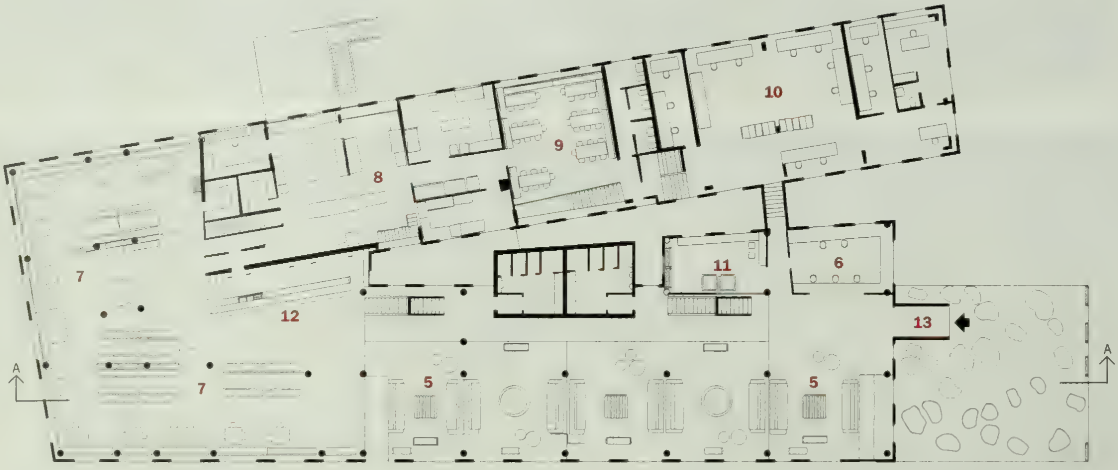




ıratic boulders from ıe Patagonia moun- ıin range sprinkle the ıner courtyard and reinforce the mood of peaceful solitude the architects desired for Hotel Remota.



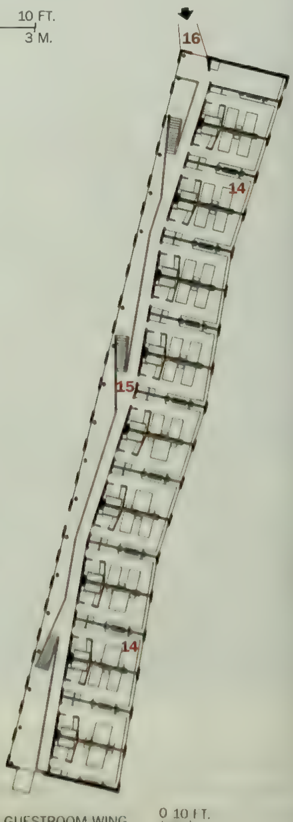
SECTION A-A



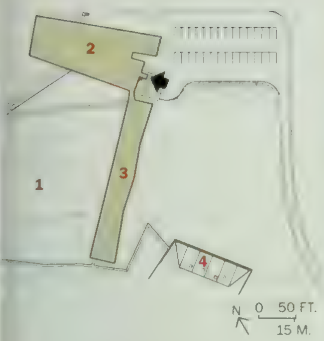
ENTRY LEVEL - MAIN BUILDING

The chimneys' curved flues prevent hard-driving rains and winds from entering the building (opposite, top). Hotel Remota overlooks a mountain range (below left and opposite, bottom) and is only 93 miles from Torres del Paine National Park. Guests of the all-inclusive hotel can choose from a number of day-long trekking options, depending on their skill level.

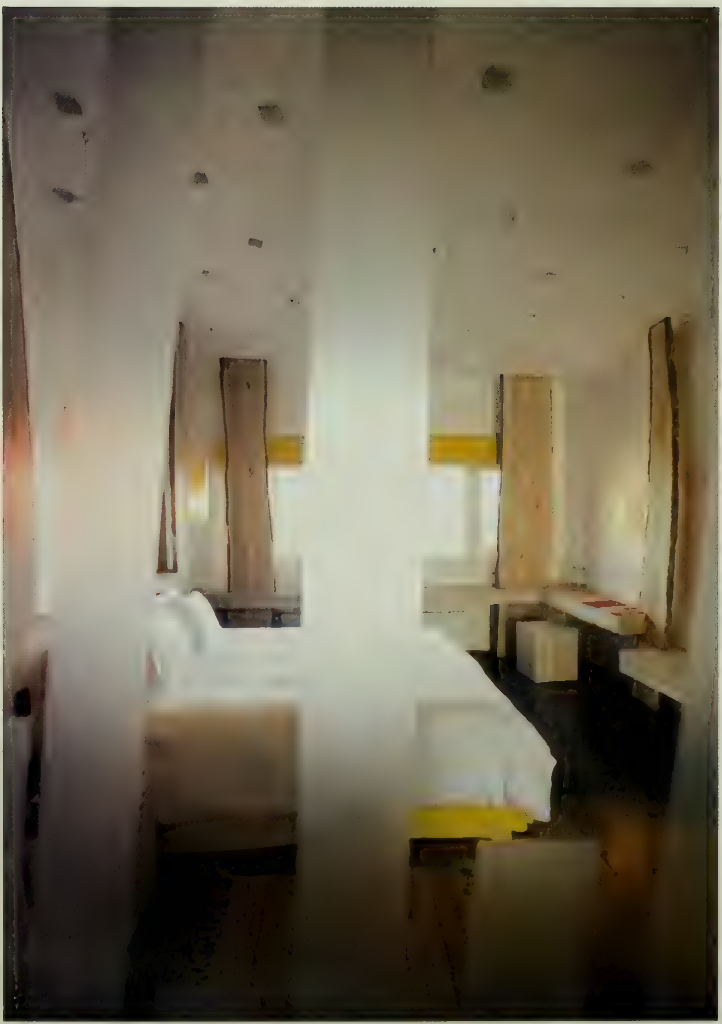
1. *Conservatory*
2. *Reading room*
3. *Exhibition area*
4. *Porte cochere*
5. *Living room*
6. *Reception*
7. *Dining room*
8. *Kitchen*
9. *Staff dining*
10. *Offices*
11. *Shop*
12. *Bar*
13. *Entrance*
14. *Typical guest room*
15. *Corridor*
16. *From main building*



GUESTROOM WING



P
M building
G -room building
S



The spa's infinity pool reflects the dissolving colors of the walls (above). Guest rooms provide softly lighted refuges that contrast with the view of the rocky mountain landscape seen from each window (right).

Solution

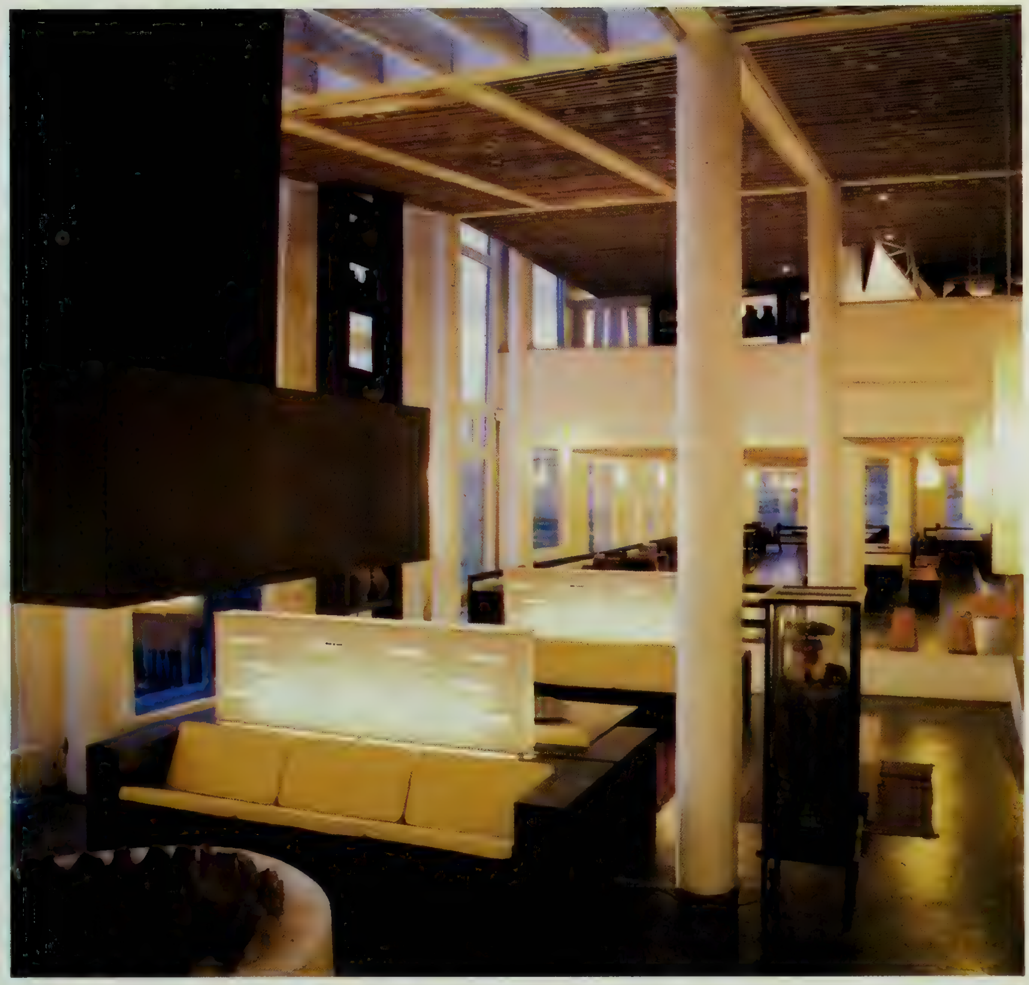
Part of Remota's appeal lies in its deferential attitude to the surroundings. Whereas Frank Gehry's Riscal Winery, in Spain (see page 130), redefines the terrain, the low horizontal forms of Remota's totally precast-concrete buildings, like lightning bolts across the ground, frame the landscape. Here, del Sol's exterior vibrates with tall, off-kilter window frames set in wrapped plywood infill panels, an effect the architect likens to both jazz musician Keith Jarrett's improvisational techniques and vernacular building methods that lack the precision of professional designs. As del Sol puts it, "I'm always looking at what the people of the local culture have done in the same situation."

Remota's plan opens up like an interior landscape. Guests thread through a V-shaped public building to extensive understated corridors connecting to the guest-room wings and spa. Outside, the stark superblocks embrace an irregular field of erratic boulders, brought in from the mountains, conveying the powerful sense of emptiness del Sol finds in the vast peaks beyond. Furthering the landscape conceit, the existing grass, removed to allow for the building footprints, now covers the roofs in a 24-inch insulating layer.

The interiors combine the architect's version of luxurious Minimalism with the faint utilitarian ambience of Patagonian barns. As with those buildings, a single group of carpenters built the hotel and its furniture. Cubic sofas and tables of Lenga wood (harvested locally) populate the native slate floors, with patches of color appearing as sparingly as in the surrounding terrain. Cypress ceilings, installed in an open pattern to dampen sound, reveal painted concrete above and allow lantern-like light fixtures simply to dangle.

"My motivation is to look for new points of view for things that have always been in architecture," says del Sol. With that approach, the slatted wood of sheep barns becomes the mien of the corridors connecting the guest-room wings to the main building; these rough-hewn

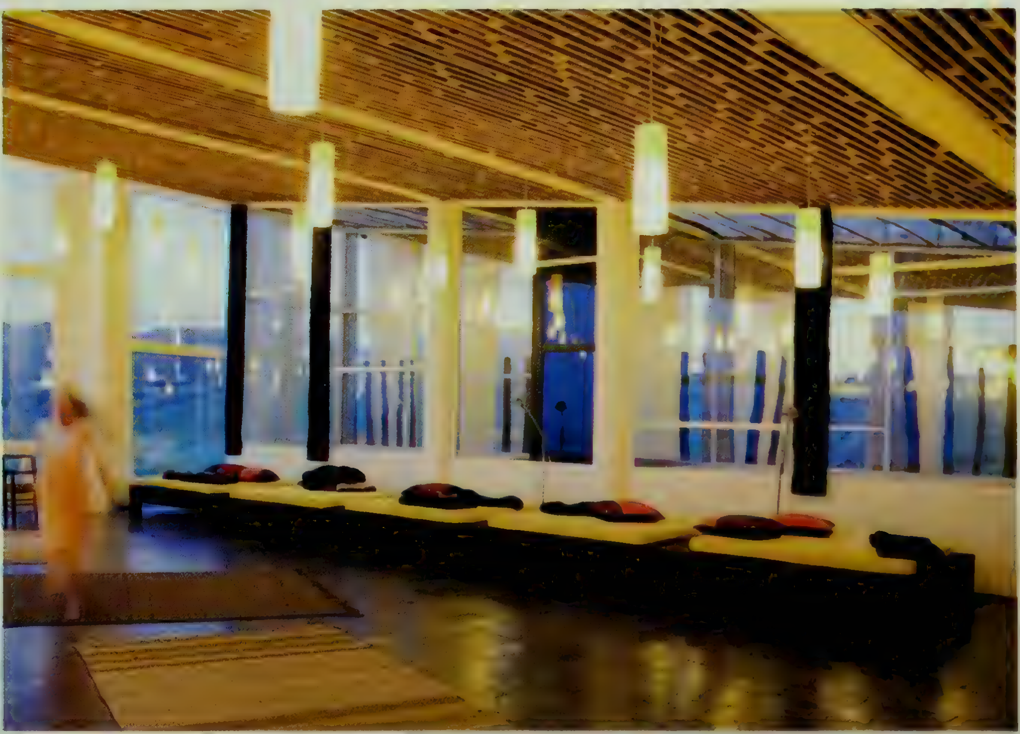
he architect intended the living oom's muted color scheme reflect the random spots of olor in the landscape (right). ramatically lighted public areas fford vistas of the extraordinary eology outside (below right).



ooden passageways allow some old wind to pass through them, nhancing the refugelike quality of ach 350-square-foot guest room. erimeter radiators heat each of e rooms, while ventilation spouts aintain fresh airflow. The curved himneys on the roof protect fireplaces from excessive wind and rain. arge, operable, double-glazed windows in each bedroom allow cool air during the summer (Patagonia's limate makes air-conditioning nnecessary), and admit ample light winter. The black synthetic-asphalt embrane over the plywood exteor cladding provides additional ee heat in the winter months.

ommentary

an era of ambitious global practices, few architects get the chance develop as intense a relationship ith the land and a particular building program as del Sol has with atagonian hotels. The architect has pent the better part of the past wo decades traveling throughout hile's wild, geologically splendid, nd isolated landscapes, developing confident approach to architecture at doesn't shy away from experimentation with linear and irregular lans, unconventional materials, nd distorted forms. At the same me, his work remains anchored in sensibly straightforward vernacuar. As del Sol says, "Remota doesn't ake you away from the experience f being in Patagonia." This hotel is ot an escapist fantasy or a themed nvironment, but a choice lesson how a local building culture can form design without sacrificing ontemporary ambition. ■



Three: THE OUTPOST

Kruger National Park, South Africa

Enrico Daffonchio creates an architecture that treads gently in the bush, while giving visitors an intense experience of the wilds.

By Sarah Amelar

Architect: *Enrico Daffonchio and Associates—Enrico Daffonchio, partner in charge*
Owner: *Lodges of Manyeleti*
Engineer: *Rodney van Dam*
Interior designer: *Peter Aucamp, Christoff van Staden*
Consultants: *WSP Engineering (lighting); Kruger National Park Management (landscaping); Dave Grossman (environmental impact)*

Size: *24,757 square feet*
Cost: *$3.1 million*
Completion date: *February 2003*

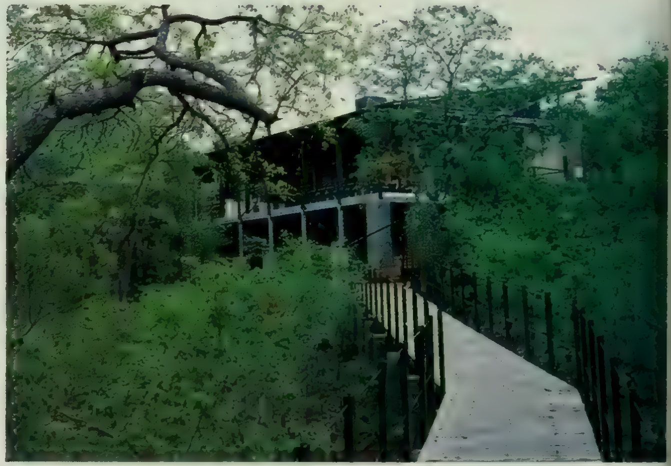
Sources
Steel: *Leita*
Hardware: *Assa-Abloy*
Wall finish: *Cemcrete*
Lighting: *Radiant; Phillips; Le Grand (controls)*
Plumbing fixtures: *Italtile; Finda*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

Perched among elephants, lions, leopards, zebras, and giraffes, in the vast bushveld of South Africa's Kruger National Park, The Outpost, a new lodge, needed an environmentally responsive architecture with an atmosphere of relaxed comfort in the wilderness. But the creation of this hotel also involved a far taller order—to help right one of the wrongs committed in the Apartheid era.

In 1969, the Apartheid government had forcibly removed the Makuleke people from their ancestral land, and incorporated that more-than-59,000-acre tract into Kruger National Park.

After the restoration of democracy to South Africa, in the 1990s, the tribal community brought a legal claim, resulting in the return of their land. By the conditions of the agreement, the property would remain in its pristine, undeveloped state—not occupied by the community—except the Makuleke would hold a concession on twelve lodges to be built and operated here in accordance with the park's environmental guidelines. With input from the Makuleke, private developers would commission the hotels. But the labor force engaged to construct, staff, and manage them would come from the tribal community, which would collect concession rental fees for 30 years. At the end of that period, the Makuleke would own the lodges.



Raised teak walkways, with the compound's service lines hidden beneath the deck, connect The Outpost's separate buildings (above).

Program

The Outpost, the first of the lodges erected in this northern region of the 6.2-million-acre park, had a modest brief: a dozen freestanding units (each accommodating two adults), and a main building with reception, dining, and lounge areas, as well as an outdoor swimming pool. The idea was to set the architecture subtly into the landscape, providing certain comforts and luxuries, while opening the guests to an intense and direct experience with the natural surroundings.

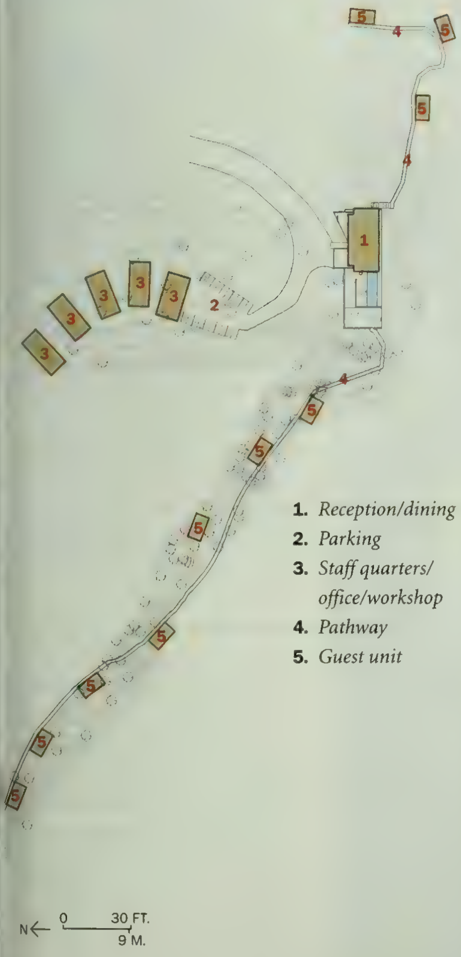
Solution

The client engaged Italian-born architect Enrico Daffonchio, who had demonstrated his commitment to sustainability and building minimally in the bush with his small museum at a UNESCO archaeological site near Johannesburg. (The freeing of Nelson Mandela, in 1990, and Apartheid's dismantlement had inspired Daffonchio, then a recent architecture school graduate, to move to South Africa.)

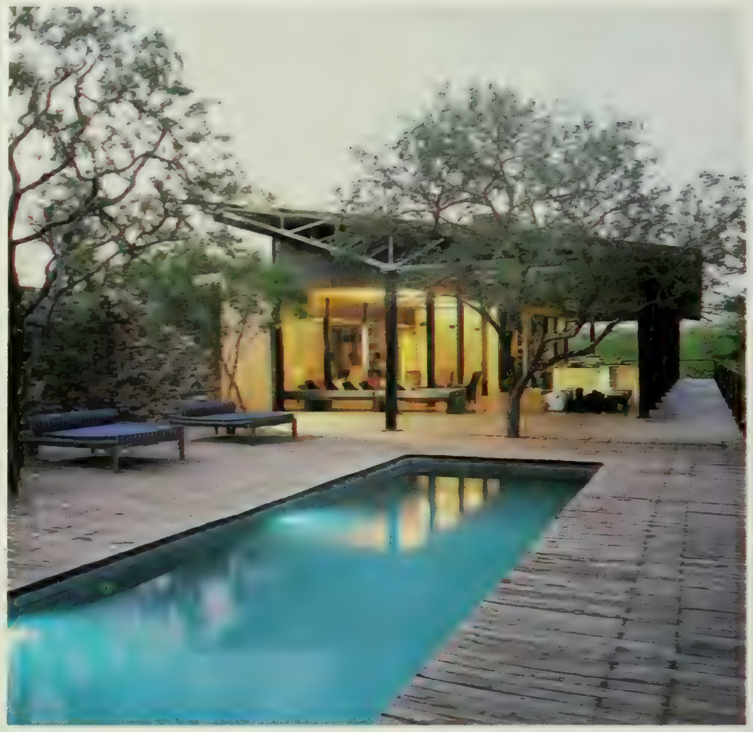
The site for The Outpost was challenging: Three-quarters-of-a-mile long and a mere 20-feet wide, the land forms a ridge, dropping off at a 60-degree angle toward a plain with a river meandering through it.

Daffonchio used the abrupt topography to dramatic advantage. Visitors, all approaching the lodge by jeep on a sandy road through the bush, suddenly confront a long wall, which they enter through a small opening. There, they discover what the architect calls "an explosion

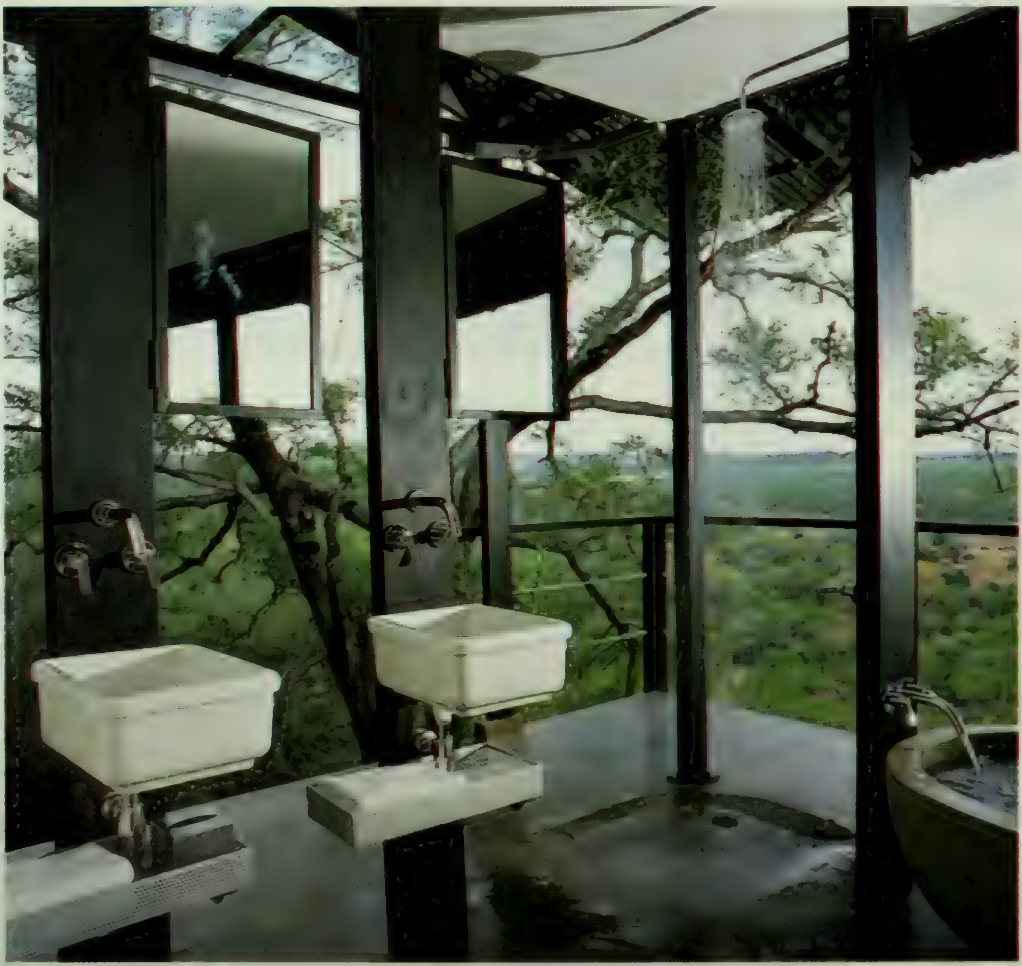
Guest units rise on stilts along a ridge high above the riverbank (left). Each nearly wall-less cabin (with sliding screens) has a lounge, bedroom, and bath (bottom). Nestled in the bush, the units offer privacy with panoramic views out (below).



1. *Reception/dining*
2. *Parking*
3. *Staff quarters/ office/workshop*
4. *Pathway*
5. *Guest unit*



The pool deck extends from the main structure, which shelters reception, lounge, and dining areas (left). Guest bathrooms open breathtakingly to the dramatic landscape (below).



of view—300 kilometers of Kruger National Park spreading out beneath them."

Daffonchio scattered the 12 units along the site, connecting them by raised walkways with teak decking that conceals all the service lines: plumbing, electricity, and telephone. Leaving the terrain equally undisturbed, the buildings also stand on stilts, "like the white African fig trees growing out of the rocks," as Daffonchio envisioned them. They not only touch the ground lightly, but they can be removed, he says, "without a trace."

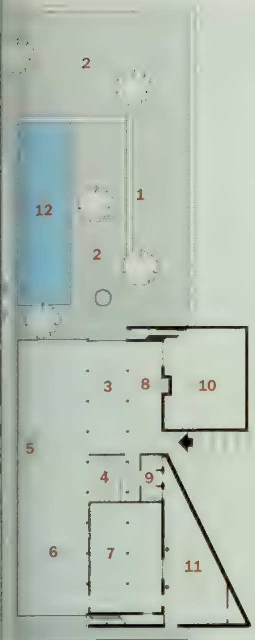
Set above the tree canopy, the individual units—each with a bedroom, sitting area, and bath—are like tree-house platforms, sheltered overhead but otherwise remarkably open to the great outdoors. Most of the exterior walls are screens that can slide aside; each has separate layers—mosquito netting and canvas, which guests can roll down—but no glass.

Even when the spaces lie wide open, the orientations and siting keep them private and at a very safe distance above the wildlife. So you can relax in the bathtub, muses Daffonchio, "with a glass of ice-cold white wine and a 70-meter [230-foot] drop to one side. You can also hear the jackals at night and see the stars come out." But you're not exactly camping out. "It's very remote," adds the architect, "but with the finest linen sheets."

Beyond experiential and aesthetic qualities, the design (and its construction methods) had to suit the previously unskilled Makuleke construction crews, working on a site 200 miles from the nearest hardware store. So Daffonchio created an easy-to-assemble scheme with a limited material palette of wood (local meranti and teak), steel beams, poured-concrete floors (sealed with beeswax), and prepainted, corrugated-steel roofs. He had all the pieces prefabricated in Johannesburg and shipped in—and allowed for training on the job. The whole process took less than a year.

Commentary

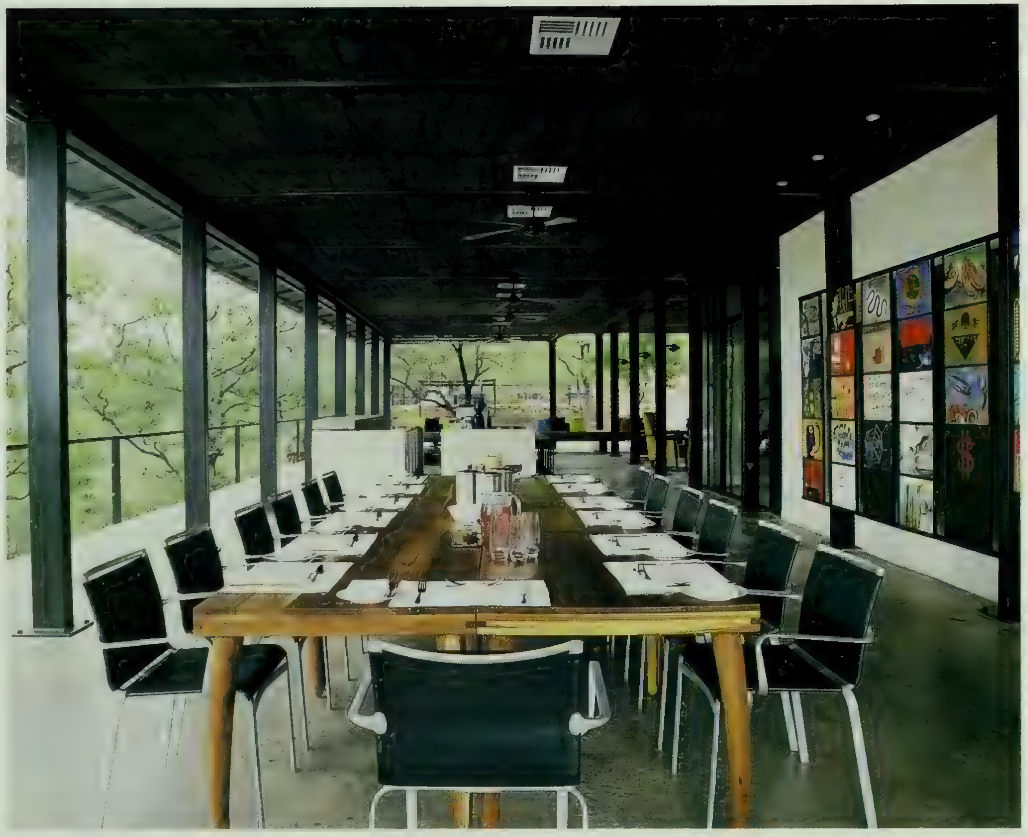
While many guests already love The Outpost, it's not for everyone. Daffonchio's idea of making the units feel "open, but not exposed or threatened" has backfired for the occasional guest, who, he says, has been "traumatized by weather—by lightning or strong winds." On another level, though, the lodge offers an inspiring model for more to come: Not only informed by a deep respect for the land, it also proposes a creative economic remedy for an injustice committed decades ago. ■

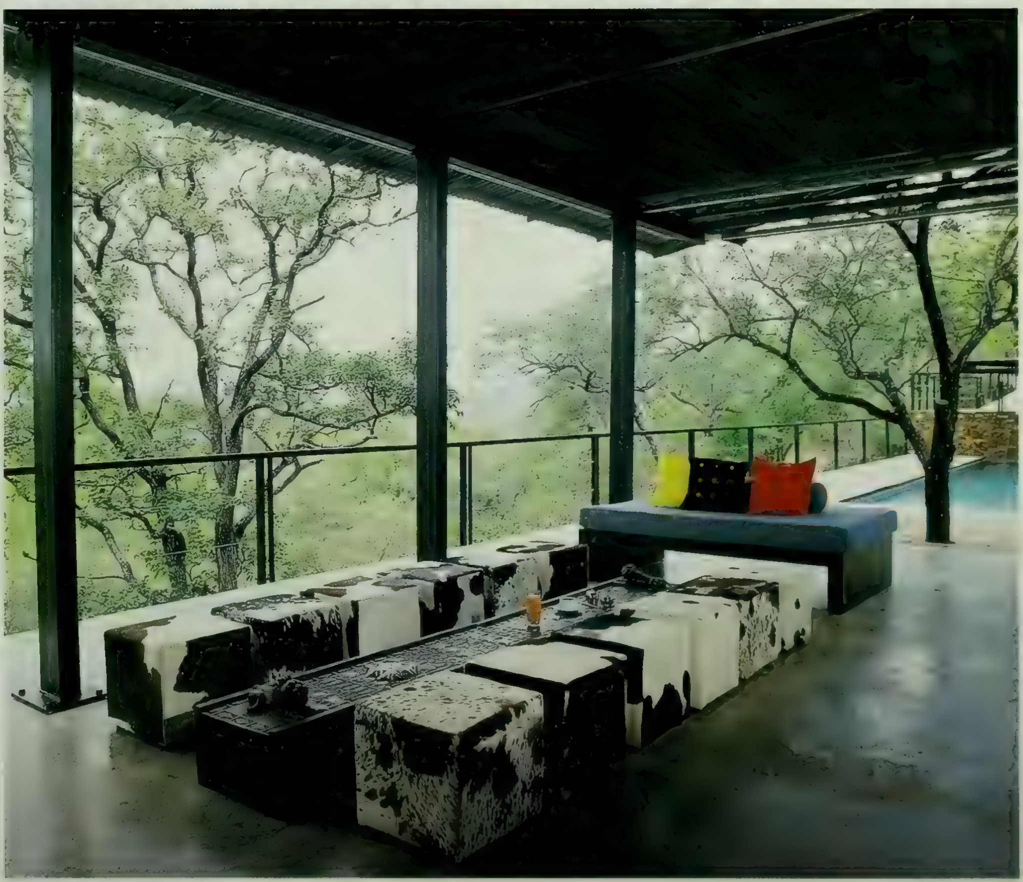


TRY LEVEL
CEPTION AND RESTAURANT

Ramp
Deck
Lounge
Wine "cellar"
Bar
Restaurant
Kitchen
Library
Bathroom
Courtyard
Service yard
Swimming pool

ısual dining (top), ınging, and swim-ng areas (right) all w together, merging th the great out-ors. The Makuleke ew built masonry lls (right, at the ck) using local ndstone and an cient Zimbabwean chnique, which volves no mortar.





Four: GRAMERCY PARK HOTEL

New York City

Ian Schrager Company, with theatrical decor, departs energetically from the Modernist aesthetic of its previous projects.

By John Gendall

Director of architecture and design: *Anda Andrei, Ian Schrager Company*
Architect of record: *Brennan Beer Gorman/Architects*
Client: *Ian Schrager, with Aby Rosen and Michael Fuchs*
Concept and design direction: *Julian Schnabel*
Design manager: *Kirstin Bailey*
Consultants: *Gilles & Boissier (restaurant design); Leslie Simitch (photography curator); Narciso Rodriguez (clothing design)*
Lighting: *Arnold Chan and Clark Johnson*

Size: *150,000 square feet*
Cost: *Withheld*
Completion date: *August 2006*

Sources
Paints and stains: *Donald Kaufman Color by Benjamin Moore*
Carpet: *Couristan*
Plumbing: *Custom Corian (sinks in rooms); Gerber & Crane (toilets in rooms)*
Photographs: *Magnum Photos (in guest rooms)*

For more information on this project, go to Building Types Study at **archrecord.construction.com**.

The curtain rose in August on the second act of the Gramercy Park Hotel in Manhattan. Originally built in 1924, the brick-and-limestone-clad establishment was once a haven for the likes of the Kennedys, Humphrey Bogart, and Babe Ruth. But by the time hotelier Ian Schrager and his longtime business partner, developer Aby Rosen, took it over, the place was a dowdy memory of its former self.

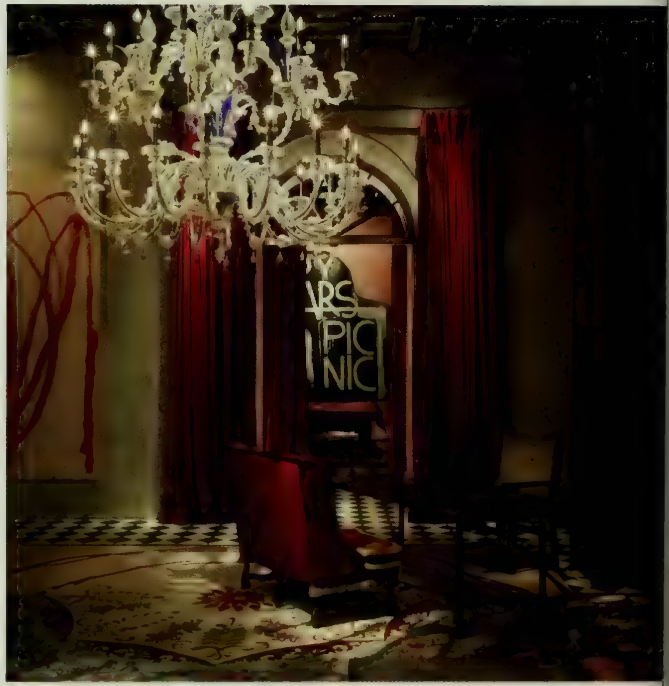
"The hotel was very run-down," explains Anda Andrei, Schrager's director of design and architecture, "with not much left to it—low ceilings, wood paneling, small rooms, and miniscule bathrooms."

Enter Ian Schrager, stage left. Taking advantage of the hotel's storied legacy and its prime location at the edge of New York's only private, lock-and-key park, he set out to retain the aura of the Gramercy's cultural legacy, while giving the place a hipper-than-thou cachet for the jet-set elite and the city's A-list.

Program

The property Schrager acquired had 600 small guest rooms crammed into two 18-story structures connected by a six-story building. Consolidating the hotel into one of the 18-story volumes, Schrager is now creating 23 condominiums, designed with John Pawson, in the remaining 18 stories, combined with a new building on the site of the original connector.

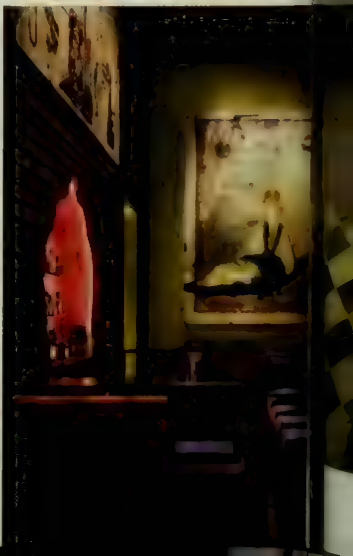
The Gramercy now boasts a double-height lobby, a spa, a gym, a chic restaurant, conference facilities, two bars, and in place of the original 600 rooms, 185 more spacious ones. Rather than gut renovate, the developers left two preexisting walls in most of the guest rooms. Plumbing, corridors, and stairs are unchanged.



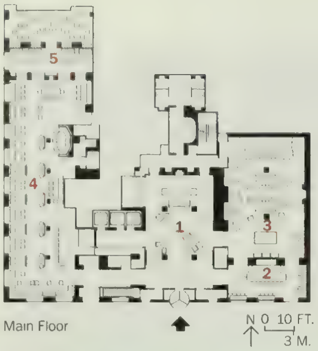
Chandeliers, velvet curtains, and rough-hewn cedar-clad pillars defy the Modernist look of earlier Schrager hotels. But like them, the Gramercy targets a hip, A-list clientele.

Solution

Behind a low-key Minimalist facade,



GPH



1. *Lobby*
2. *Jade Bar*
3. *Rose Bar*
4. *Restaurant*
5. *Private dining room*

Without adhering to any single style, or resorting to a Postmodern mélange, the designers aimed for a mercurial atmosphere that evades easy definition. A Renaissance palette of crimson and moss-green velvets complements the modern industrial fixtures and big, bold 20th-century paintings.

created by Schrager on the first two floors, lies an interior that is decidedly un-minimal. Collaborating with Andrei and her associate Kirstin Bailey, along with the artist Julian Schnabel, a friend of Schrager's, the hotel impresario departed from the hypermodern design he had favored in the past.

Under Schnabel's design and concept direction, the new Gramercy borrows freely from across the globe and throughout history. Somewhat whimsically, colors, materials, and motifs inspired by different sources coexist at the hotel. Long, red-velvet drapes; robust, rough-hewn, cedar-clad pillars; and a grand chandelier emphasize the lobby's new double height. Cedar-scented candles contribute to the fabricated atmosphere.

A periodically changing display of bold, large-scale paintings by the likes of Andy Warhol, Cy Twombly, Jean-Michel Basquiat, and Schnabel appears in the lobby. With Schrager's access to New York's art scene (due, in part, to his time running Studio 54 with Steve Rubell), he developed a list of willing friends with collections large enough to make these loans.

Elevators lined with sandblasted, smoked oak lift guests to dimly lit corridors. Each guest room is unique, but all are darkly colorful, with dramatic curtains, velvet bedspreads, and custom-designed rugs over ebonized wood floors.

Andrei acknowledges the delicate balance this approach requires. "Going too far with eclectic design could lead to a Disneyland, but being too conservative lands you in a corporate hotel. There are historical references here, but cleaned up and attached to no particular era."

Commentary

Whimsical, with a baroque theatricality, the Gramercy seems poised more for a Tony than the Pritzker. Its design may prove as ephemeral as a stage set—merely the beginning of a passing fad. Or it may signal a major new direction, prompted by a serial entrepreneur with a record for redefining hotels. For now, at least, the Gramercy is busy ushering in hip guests—at least, until the final curtain call. ■

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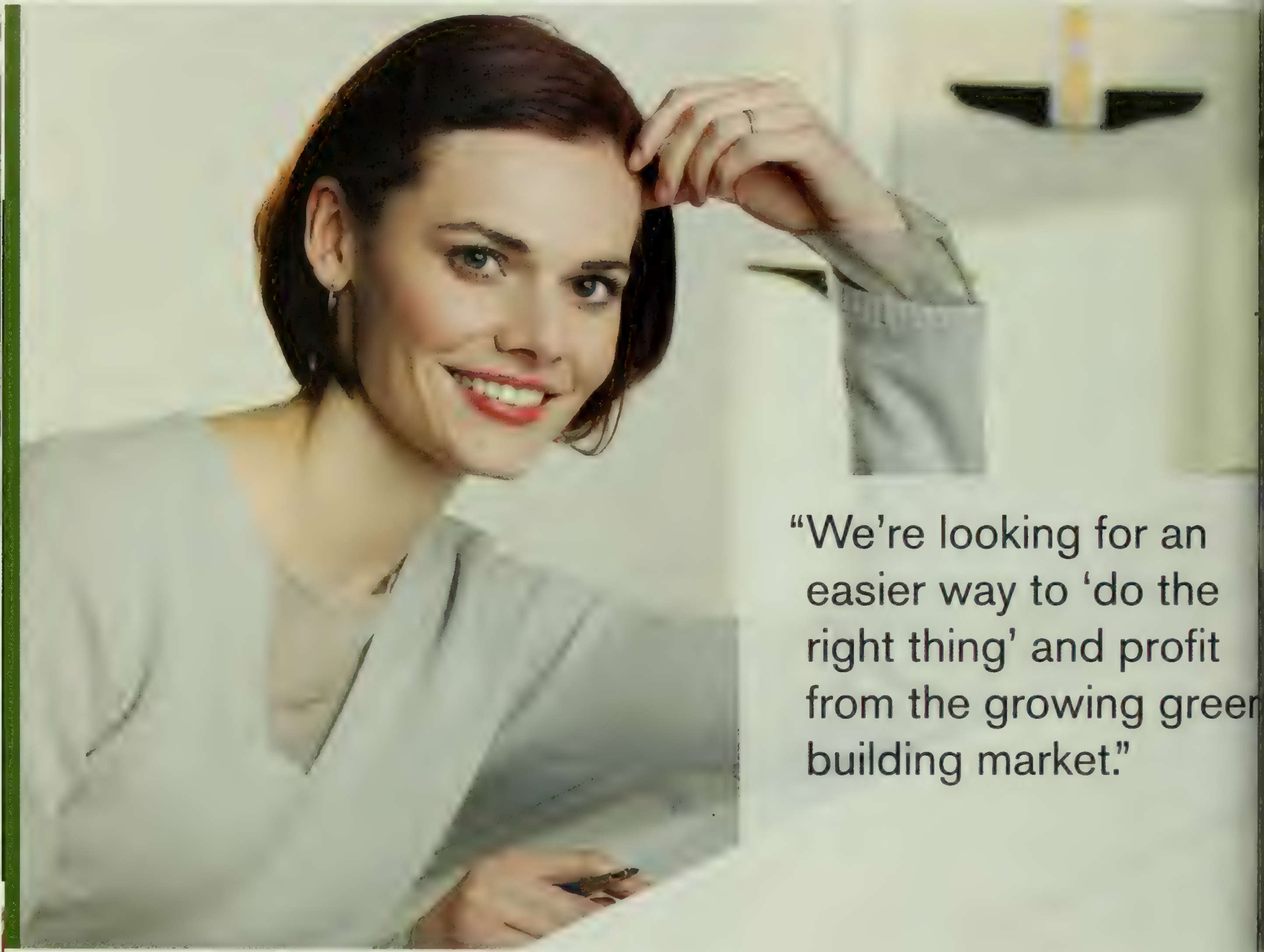

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Architectural Technology

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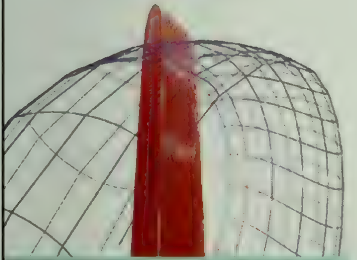

SOM's Pearl River Tower takes full advantage of daylighting (page 172).

Arup's theoretical building attempts efficiency at several scales (page 170).

The term *innovation* traditionally applies to the domain of technology, which perhaps more than other pursuits concerns itself most directly with the idea of the new. Technological development rarely looks back; no one tried in 2006 to invent a better horse carriage. Lately, innovation pops up in business writing to describe this year's version of profit pursuit, as if finding a techie jargon to position the global flow of business somehow qualifies as innovative. While good technology needs an equally good business plan to find widespread use, the plan's success ultimately depends on the innovation of the technology. Apple Computer doesn't sell iPods only because of their celebrity-endorsed sex appeal; the little gadgets actually work quite well at what they do.

The Architectural Technology section for December focuses on innovation in different ways, but all of them were inspired by RECORD's Innovation Conference hosted in New York City in October. We first see the concept at work in a Vancouver university research project that uses its building as a laboratory for experimental energy-saving technologies. Energy-efficiency concerns motivate much innovation, which is explored in a story on the contemporary state of energy policy, technology, and design for architects. Finally, we focus on two case studies that implement such research—a theoretical mixed-use building developed by Arup's New York office and a net-zero-energy skyscraper designed by SOM's Chicago office.

A building will respond to its environment one way or another, but there is increasingly little excuse to allow that response to happen by accident. What we see in the following pages is further evidence of how technological innovation—along with the considerations architects make toward its implementation—is steering the performance of contemporary architecture in the direction of something new. *Russell Fortmeyer*

Busby Perkins+Will's Centre for Interactive Research on Sustainability applies new technology (page 155).

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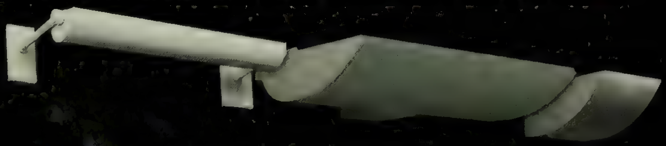

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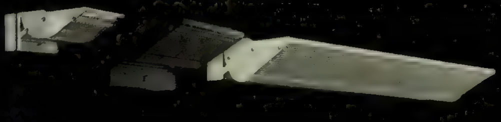

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An Evolving Edifice That Will Improve With Time

OUR UNIVERSITIES ENVISION THE CENTRE FOR INTERACTIVE RESEARCH ON SUSTAINABILITY S A LIVING LABORATORY WITH A LOFTY MISSION AND AMBITIOUS PERFORMANCE GOALS

y Joann Gonchar, AIA

For a former industrial site in downtown Vancouver, four regional educational institutions are collaborating on an unusual experiment. The schools—the University of British Columbia (UBC), Simon Fraser University, Emily Carr, and the ritish Columbia Institute of Technology (BCIT)—plan to build a 4,500-square-foot "living laboratory" they call the Centre for Interactive esearch on Sustainability, or CIRS. It will provide office and research pace for the partner institutions and the opportunity to study building roducts, technologies, and systems in context. Over the lifetime of the uilding, much of it—including its envelope; the mechanical, energy, and ater systems; and the finishes—will be treated as a research test bed. Its omponents will be modular, allowing them to be replaced or reconfig-red in a "plug-and-play" manner as technologies improve.

Designers and center officials have ambitious performance oals. They plan a building that will require few resources from off-site o operate and will create little waste. They say CIRS will use only 17 per-ent of the energy of an ASHRAE 90.1 base building and will score eyond Platinum in the Canadian Green Building Council's rating sys-em. They hope to accomplish this for about $265 per square foot, a udget typical for UBC dry-lab buildings. "If sustainable practices are to ecome standard operating procedure, we have to find a way to construct high-performance] buildings at roughly the same cost as those typically uilt by the development industry," says UBC geography professor and ormer director of the school's Sustainable Development Research nitiative, John Robinson. He is considered one of the chief visionaries ehind the CIRS.

The Centre for Interactive Research on Sustainability will be a flexible building that can adapt to long-term changes in use and technology. The building itself will serve as a "living lab" where the performance of the facility's components and systems will be the focus of the research conducted by its occupants.

CONTINUING EDUCATION

Use the following learning objectives to focus your study while reading this month's ARCHITECTURAL RECORD*/AIA Continuing Education article. To receive credit, turn to page 162 and follow the instructions. Other opportunities to receive Continuing Education credits in this issue can be found in the sponsored sections beginning on page 175.*

LEARNING OBJECTIVES

After reading this article, you should be able to:

1. *Discuss the characteristics of living laboratories.*
2. *Describe the types of research that will be conducted at the Centre for Interactive Sustainability (CIRS).*
3. *Describe the CIRS building's systems and components.*

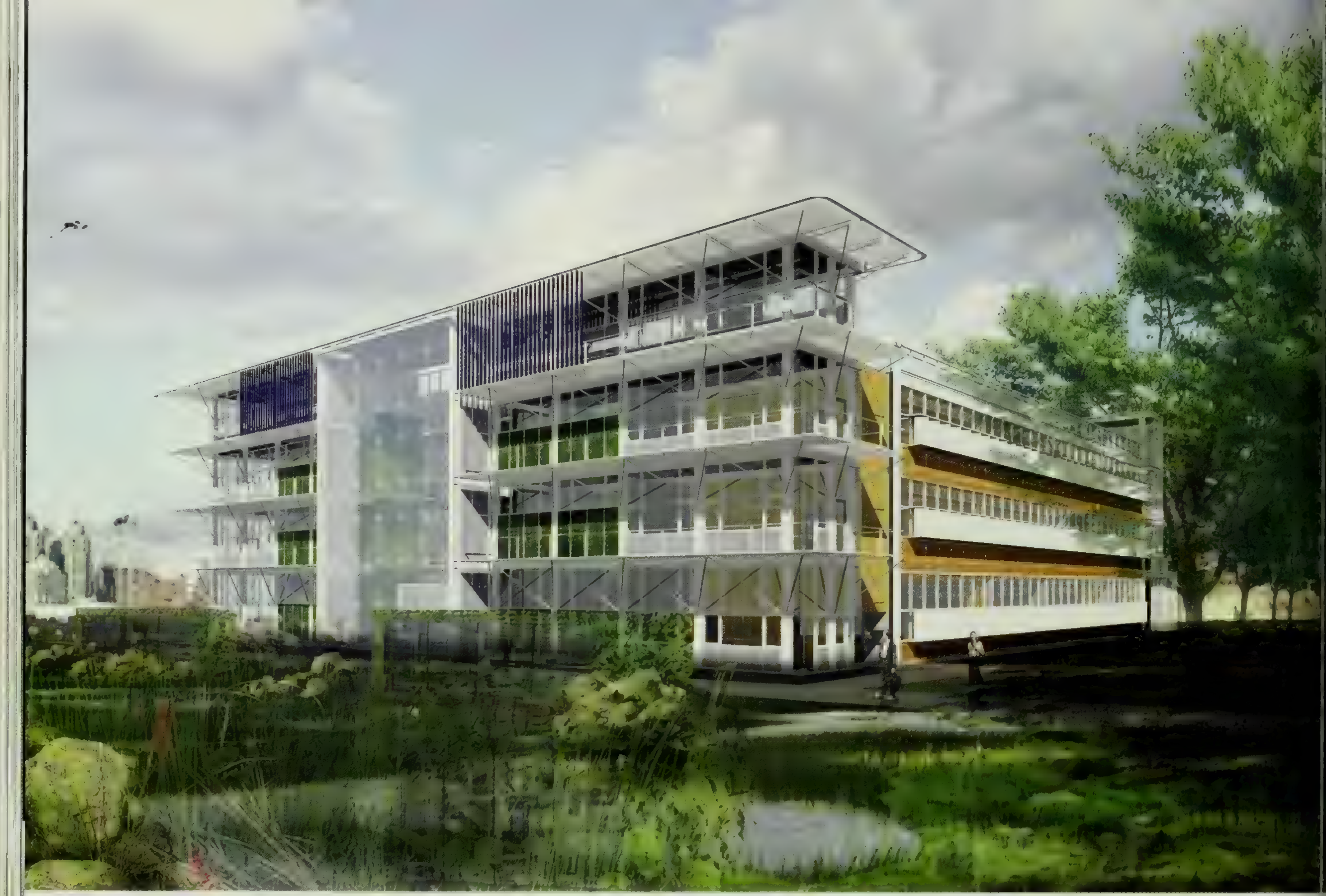
For this story and more continuing education, as well as links to sources, white papers, and products, go to **archrecord.construction.com**.

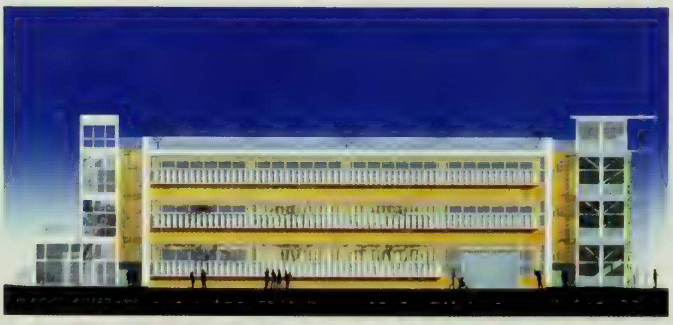
To join a discussion about this story or other sustainability-related topics, go to forums.construction.com.

The project is within about $1 million of its $21 million budget, according to the architect, Busby Perkins+Will, which recently completed design development and has submitted an application for a development permit. The client is now negotiating with the city to allow the facility to provide about a third of the number of parking spaces than would typically be required for a building of its size. CIRS officials say the reduction is justified since tenants will be required to sign a sustainability charter and will encourage users to travel to the center by public transportation, by bicycle, or by other alternative modes. If city officials accept the center's parking assessment, drilling for the building's ground source heat pumps and other site work could begin as early as February, with occupancy of the 64,500-square-foot first phase slated for the middle of 2008. Two more phases of construction are planned for an eventual total capacity of 118,000 square feet.

History as inspiration

The CIRS project is not without precedent. One earlier living lab is the Robert L. Preger Intelligent Workplace (IW), built in Pittsburgh at Carnegie Mellon University in 1997. The $4 million facility sits atop an early-20th-century building in a penthouse addition designed by architects Bohlin Cywinski Jackson and Pierre Zoelly [RECORD, June 1998, page 148].





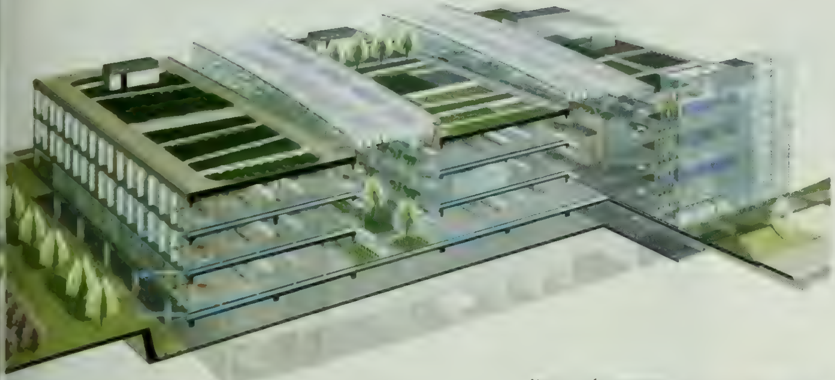
The south facade (top) has a catwalk to facilitate the change-out and testing of components such as photovoltaic panels, shading devices, and glazing. The west (above) and east facades will be more fixed, but adaptable. They will have internal and external light shelves as well as adjustable vertical shading fins.

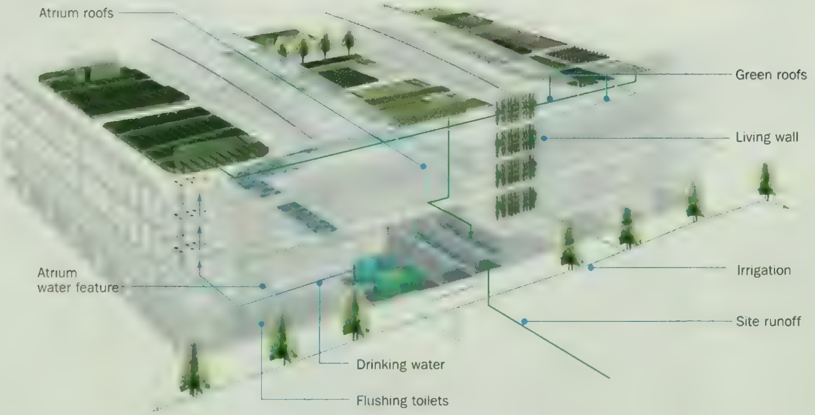
The IW serves as offices for the Center for Building Performance and Diagnostics (a division of Carnegie Mellon's school of architecture), and as a reconfigurable facility where the effectiveness of new building products and systems are tested and evaluated. In the nine years since its opening, architecture masters and doctoral candidates have used the IW to perform many kinds of investigations, including lighting and daylighting evaluations, ventilation studies, and acoustics research. For the first seven years, the facility relied on the university's infrastructure for power. However, researchers recently began examining the potential of on-site generated renewable energy, and have installed solar thermal collectors on the penthouse roof [see sidebar, page 160].

The university hopes to further explore distributed energy systems in a project it has dubbed "building as power plant." It plans an approximately 40,000-square-foot academic building that will be a net energy producer. The 7,000-square-foot IW has "only modest heating and cooling loads and is not big enough to support the next generation of power systems," says Vivian Loftness, FAIA, senior researcher for the Center for Building Performance and Diagnostics and former head of the architecture school. Before building this much larger living lab, Carnegie Mellon will have to conduct a national fund-raising campaign, says Loftness.

More than an experiment

Unlike Carnegie Mellon's IW, the Vancouver facility will include office space for nonacademic tenants. One of these tenants is the region's elec-





**agrams showing the
nter after the third
ase of construction
ustrate the facility's
ntilation and air-
pply system (above)
d the strategy for
inwater collection
d reuse (right).**

ic utility, BC Hydro. It has signed a 25-year, prepaid lease for about
500 square feet of office space. The funds will be used to help finance
nstruction—a way to reap the rewards of CIRS's promised lower oper-
ing costs up front. This practice is atypical for developers, and even for
ng-term institutional owners, who rarely intermingle capital and oper-
ing budgets. "One of the biggest barriers to building sustainably is the
erating/development cost split," says Robinson.

preading the gospel

ie deal is also advantageous for the utility, says Bruce Sampson, BC
ydro's vice president for sustainability, who predicts that rents will rise
nsiderably over the next quarter century. But the utility's interest in
IRS goes beyond the inexpensive rent. It shares the center's mission of
mmunity engagement and has had a long-standing program to encour-
e its customers to conserve electricity.

About 50 employees will occupy BC Hydro's space at the center
any one time, but on a revolving basis, predicts Sampson. "They will
exposed to the leading-edge thinking and then will bring it back to
eir regional offices," he says.

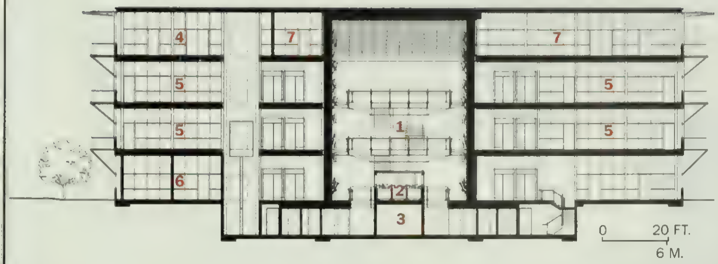
Part of BC Hydro's approximately $4.5 million prepayment will
toward sponsorship of a 100-seat visualization theater, where the gen-
al public, policy makers, and others will be able to quickly model the
vironmental ramifications of energy-use decisions at the regional, city,
d building scale. "To hit our goals we have to be a catalyst for sustain-
le urban environments, infrastructure, and buildings," says Sampson.

The CIRS building will be composed of two three-story office blocks connected by a central atrium that features internal light scoops and solar reflectors. The space will be covered by a saw-tooth-shaped skylight with integrated photovoltaic panels. The 36.9 megawatt-hour-per-year array is expected to supply about 20 percent of the facility's electricity needs. Power will also be provided by solar hot-water collectors, fuel cells, and an on-site cogeneration plant. "We are trying to pull the building off the grid," says Blair McCarry, a principal at Stantec, the project's mechanical engineer.

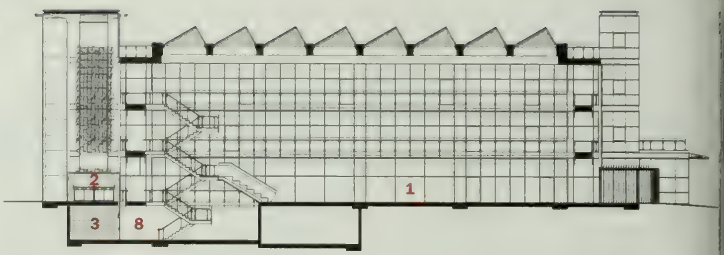
The south side of the building will serve as a "three-dimensional vertical lab" for the testing of such elements as glazing, photovoltaic panels, wall assemblies, and shading devices. On almost every floor, at the southwest and southeast corners of the building, labs for building monitoring and assessment will be located in the 13-foot-deep zone directly adjacent to the facade. These rooms will provide a controlled environment for the study of the relationship between the building envelope components and other elements, such as the heating and cooling systems, interior shading devices, or interior finishes and furnishings.

THE SOUTH FACADE WILL BE CONSTANTLY EVOLVING AND WILL LOOK LIKE A CONTINUOUS CONSTRUCTION SITE.

This building monitoring and assessment zone will be constantly evolving. It will have a steel structure with catwalks and a permanent hoist to allow for frequent change-out of components. "It



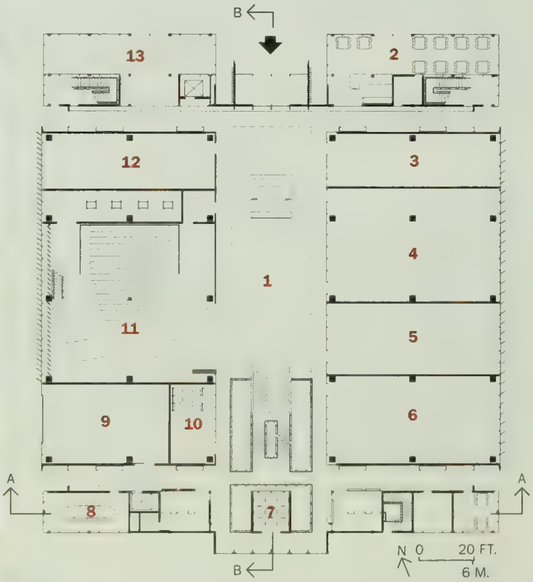
SECTION A-A



SECTION B-B

1. *Atrium*
2. *Biofilter*
3. *Cistern*
4. *Green roof research*
5. *Building monitoring and assessment lab*
6. *Meeting room*
7. *Mechanical room*
8. *Bicycle storage*

The CIRS building will have two office blocks connected by a central atrium, which will be topped by a saw-toothed skylight. Spaces like the visualization theater and policy lab will help the center fulfill its goal of public engagement.



ENTRY LEVEL

1. *Atrium*
2. *Café*
3. *Operations*
4. *Policy lab*
5. *Lab space*
6. *Project room*
7. *Biofilter*
8. *Meeting room*
9. *Receiving*
10. *Resource library*
11. *Theater*
12. *CIRS offices*
13. *Retail*

will never look the same twice and will be a continuous construction site," predicts Donald Yen, program director for the Centre for Sustainable and Environmental Initiatives at BCIT, the primary research group using these labs.

More limited portions of the north facade will also be changeable, offering another orientation for the testing of building envelope components. The east and west elevations, the facades adjacent to the office portions of the building, will incorporate internal and external light shelves. Vertical fins will act as sunshades. These will have set points appropriate for different seasons but can be repositioned by the occupants for special conditions.

THE BUILDING FRAME IS BOLTED TOGETHER TO FACILITATE RECONFIGURATION AND ULTIMATE DISASSEMBLY.

The framing of the main part of the building, which the designers refer to as the "core," is based on a 26-foot-by-4-inch module. It is to be made of locally sourced engineered wood beams and columns, bolted together to facilitate reconfiguration and ultimately, disassembly, should the building reach the end of its useful life, says Paul Fast, a principal of Fast + Epp, the project's structural engineer.

The facility will have many operable windows, but will not be completely naturally ventilated. Because the site is near a rail yard and a fish-processing plant, the design team was concerned about air quality. "There will be times when we might have to button up the building," says Martin Nielsen, Busby Perkins+Will principal.

A raised floor system over a radiant structural floor will allow for flexibility for wiring and office layouts and will provide a plenum for the displacement air system. Return air from these cavities will be drawn into the atrium space, filtered through a living wall, and recirculated through the building.

In an earlier scheme, the raised floor sat above precast-concrete panels. These have since been replaced by concrete on steel deck because of budget concerns. Although the assembly is likely to be made of poured-in-place concrete, it will nevertheless be panelized to maintain the potential for disassembly, says Nielsen.

The requirement that the building be demountable presented a special seismic design challenge for the structural engineer. He has had to devise a method for the transfer of shear forces across the joints in the radiant-floor assembly. "It's just one more parameter to think about," says Fast, who has also designed a steel brace for the building as an alternative

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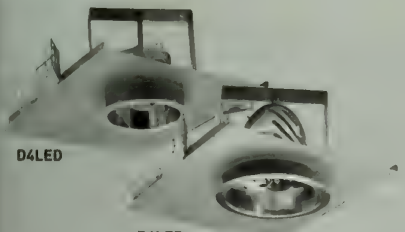

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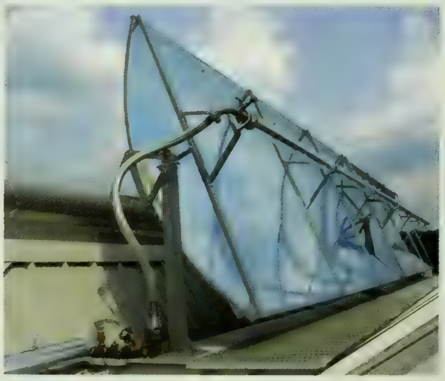
Earlier Living Laboratory Sets Its Sights On the Next Generation of Power Systems

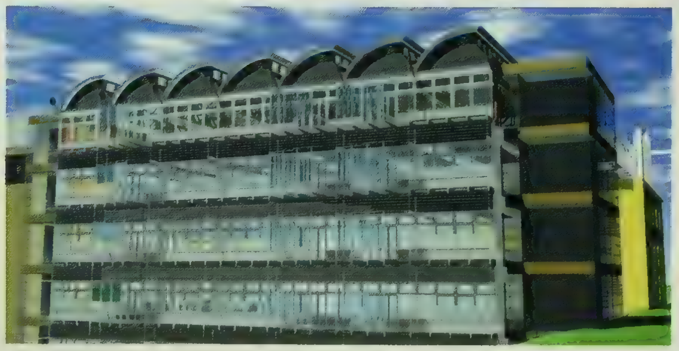
On a smaller scale, investigations similar to those planned for Vancouver's Centre for Interactive Research on Sustainability have been conducted for almost a decade in Pittsburgh, at Carnegie Mellon University's Center for Building Performance and Diagnostics [CBPD].

Part of the school of architecture, the CBPD built its living lab on top of the early-20th-century campus building (far right). Since its opening in 1997, students have used the facility, the Robert L. Preger Intelligent Workplace, or IW, to perform investigations such as lighting and daylighting evaluations, ventilation studies, and acoustics research. They have started exploring the potential of buildings to produce power and have installed solar thermal collectors on the roof (above and bottom right). They consist of a reflective trough and a high-temperature steam pipe, and can be used to run an absorption chiller for cooling. The temperature of the steam can also be stepped down to provide heat, explains Vivian Loftness, FAIA, senior CBPD researcher and past head of the architecture school.

The university hopes to further these explorations in a 40,000-square-foot academic building project (bottom left). It would provide the opportunity to apply, at commercial scale, a combined heat and power system using reject heat for generating electricity, heating, cooling, and dehumidification built on a fuel cell.



The building would have a connection to the ground, in order to tap into geothermal energy, and would incorporate renewable sources such as photovoltaic and solar thermal power.



to the plywood shear walls more typically used in low-rise structures. The brace will absorb the energy of a serious quake, sparing the other building components, but likely becoming permanently deformed in the process, he explains. The braces will be bolted to the building's beams, and could be easily replaced if damaged during a temblor.

The roofs over the office wings will be vegetated, and will be monitored and evaluated. CIRS researchers plan a diverse set of projects. "We will test beyond [the usual] storm-water mitigation and thermal performance," says Maureen Connelly, program head of BCIT's Center for Advancement of Green Roof Technology. It is not clear yet if the roof's loading capacity will be adequate for an intensive green roof system, which would be appropriate for a wide variety of plant material, including small trees, flowers, or vegetables. However, Connelly has high hopes that researchers will be able to use the facility to study the capability o green roofs to support biodiversity, urban habitat, and urban agriculture.

THE STRENGTH OF THE CIRS CONCEPT IS THAT IT BRINGS ACADEMICS AND THEIR RESEARCH PROJECTS TOGETHER.

Connelly has a particular interest in the sound-transmission characteristics of green roofs—their potential to reduce noise transmission through the building envelope, and their ability to absorb and reflect sound. She predicts that other academics will likely conduct research into

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areas such as the relationship between green roofs and mechanical-system performance or the therapeutic benefits of rooftop greenspace. The strength of the center's concept is that it brings these academics and their projects together, says Connelly. "At each platform of CIRS, there are many more levels of research," she notes.

The center will be connected to Vancouver's water and sewer systems. However, CIRS officials and its designers say the municipal services will be used rarely, if ever. Rainwater runoff collected from the skylights and other clear roof surfaces will be stored, treated, and distributed for use in showers and sinks, and to supply other potable points. Any water that drains from the building's green roofs will not be suitable for these uses because of organic materials typically found in such runoff, explains Troy Vassos, president of the process engineering firm Novatec. The green roof water will be combined with wastewater from showers, lavatories, and toilets, and treated, possibly using a membrane bioreactor or a solar aquatic system, so that it will be safe for direct human contact, he says. This treated, mixed wastewater will then subsequently be used to flush toilets and to irrigate the green roofs and the site's landscaping.

Many clients, one project

The center is the first project that Busby Perkins+Will is designing with a three-dimensional, parametric building information model. The model's interference-checking capabilities have been particularly useful for coordinating among the architectural design team and the various consultants, says Nielsen. And the 3D visualization tools have helped explai the building to its many constituents. "With four client institutions, eac with its own research clusters, at times there are 30 people at the tabl during planning meetings," he says.

The center's designers say that the 3D model will also help th industry close the gap between predicted and actual performance. For th life of the building, CIRS's various systems and components will be "super-monitored," says Stantec's McCarry. Information regarding such factors a energy and water use, indoor air quality, and temperature will be continuously and systematically gathered from nearly 1,500 monitoring points

CIRS WILL PROVIDE REAL-WORLD DATA TO HELP CONSTRUCT MORE ACCURATE PREDICTIVE PERFORMANCE MODELS.

Researchers will have the ability to compare this data to th information about the building's predicted performance contained in th 3D model. "Once the building is in operation, we can go back to the original assumptions with real-world feedback," says Nielsen. "Ultimately, w will be able to construct more accurate models," he says.

CIRS officials also plan to evaluate the relationship betwee the building's environment and the health, productivity, and satisfactio of the occupants, using tools such as postoccupancy surveys. Joke McCarry, "It's a scary amount of accountability." ■

AIA/ARCHITECTURAL RECORD CONTINUING EDUCATION

INSTRUCTIONS

- **Read the article "An Evolving Edifice That Will Improve With Time" using the learning objectives provided.**
- **Complete the questions below, then fill in your answers (page 277).**
- **Fill out and submit the AIA/CES education reporting form (page 277) or download the form at www.archrecord.com to receive one AIA learning unit.**

QUESTIONS

1. The facility for the Centre for Interactive Research on Sustainability (CIRS) will be all of the following except which?
a. a research test bed for building components and systems
b. built at the same cost as a University of British Columbia wet-lab building
c. an occupied building
d. demountable

2. One of the biggest barriers to building sustainably is which, according to University of British Columbia geography professor John Robinson?
a. first costs
b. operating costs
c. the strict separation between development and operating budgets
d. permitting

3. The solar thermal collectors on the roof of the Intelligent Workplace at Carnegie Mellon University provide which?
a. heating only
b. cooling only
c. heating and cooling
d. hot potable water

4. CIRS will have all of the following features except which?
a. a welded-steel structural frame
b. two three-story office blocks
c. a central atrium
d. a saw-tooth-shaped skylight

5. Power for the CIRS facility will be provided by which method?
a. fuel cells
b. photovoltaic panels
c. a cogeneration plant
d. all of the above

6. The south facade of the CIRS building will serve as a 3D lab for the testing of all except which?
a. steel catwalks
b. glazing
c. photovoltaic panels
d. shading devices

7. The brace designed for the CIRS facility will do all except which?
a. absorb the energy of an earthquake
b. spare other building components from damage in an earthquake
c. be easily replaceable
d. not be damaged in a serious earthquake

8. Operable vertical fins will serve as shading devices on which facade of the CIRS building?
a. the east facade only
b. the west facade only
c. the east and west facades
d. the north facade

9. Potable water at the CIRS building will come from which source?
a. green-roof runoff
b. skylight runoff
c. site runoff
d. the municipal water supply

10. The CIRS facility's architects are using building information modeling to do which of the following?
a. coordinate the design among the firm's consultants
b. help explain the building to project stakeholders
c. develop a database of predicted performance information
d. all of the above

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WITH ENERGY-MODELING PROGRAMS AND EARLY INPUT, MECHANICAL ENGINEERS ARE INCREASINGLY INVOLVED IN DESIGN DECISIONS THAT ARE SHAPING THE LOOK OF A NEW ARCHITECTURE

By Russell Fortmeyer

Only a handful of city blocks separate A.C. Martin's 1965 building for the Los Angeles Department of Water and Power and Morphosis's 2004 regional headquarters for the California Department of Transportation, or Caltrans, but the concepts informing their design reflect a much greater divergence.

The DWP and Caltrans arguably rank as the most influential institutions of the city—plentiful water and power enabled the freeway-obsessed birthplace of sprawl to evolve into the de facto financial and cultural capital of the world's seventh-largest economy. And it takes a lot of power to keep it humming (think Hoover Dam). This explains, perhaps more than their 40-year age disparity and different architects, why the DWP and Caltrans buildings look so unrelated. Unlike a Hollywood starlet, the look isn't skin deep: The buildings function radically differently owing to a culture of energy use that has moved from the free-wheeling to the conservative.

David Martin, FAIA, a design partner at his family's firm, fondly remembers when in his youth his late father, A.C. Martin, Jr., FAIA, would discuss the progress of the DWP. "The attitude of the time for the DWP was of tremendous civic pride, so energy was understood not in terms of using the smallest amount, but using it in innovative ways," Martin says. "The building's design was meant to symbolize the use of energy."

The DWP building occupies an artificially constructed promontory surrounded by pools and fountains that feed the building's cooling towers. As the iconic photography of Julius Shulman ably demonstrates, the uniformly lit floors—continuously illuminated around the clock with linear fluorescent T12 lamps—bolster the structure's imposing monumentality. Here, natural resources are a kind of decoration. They are yet another Southern California marketing campaign, like flowers attached to floats in the Rose Parade. That tactic continues, however reversed, with the Caltrans headquarter's advertising of conservation and energy generation, witnessed in the building-integrated solar photovoltaic array on its south side.

DWP's curtain-wall system, with overhangs at each floor to limit sunlight and heat gain, wraps all four building sides. At Caltrans, each face is computer modeled and built to respond to the conditions particular to that side. Where the DWP eschewed boilers, depending instead on its energy-hogging fluorescent lighting for heating, Caltrans's efficient central plant operates through a building control system to target its performance toward shifting environmental conditions. A lighting control system cuts energy use further. These performance improvements are increasingly common in buildings, though few states mandate energy efficiency quite as strictly as California.

Crisis as opportunity

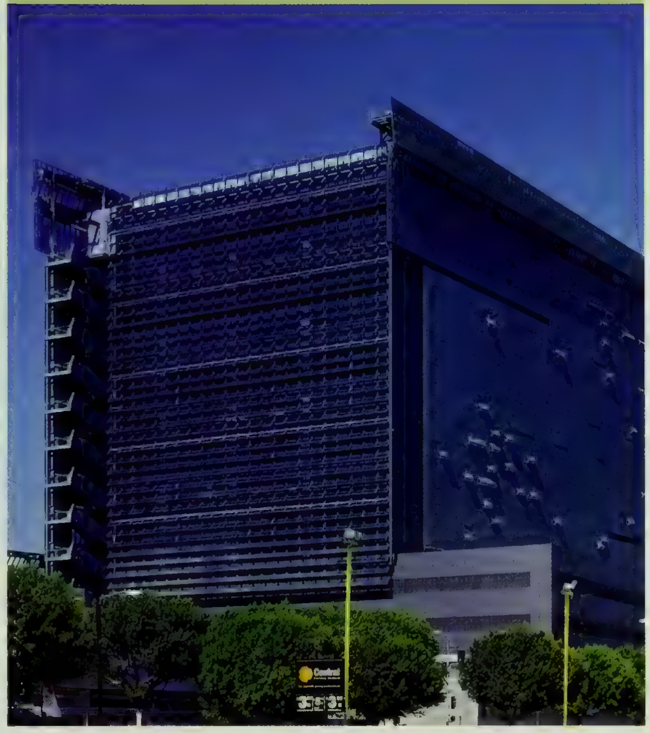
"Designing intelligent structures is mandatory," says Peter Tertzakian, an energy consultant and the author of the book *A Thousand Barrels a Second* (published by

LOS ANGELES DEPARTMENT OF WATER AND POWER, 1965 —A.C. MARTIN PARTNERS

In his 1997 book *The Reluctant Metropolis*, William Fulton calls the DWP building "a far more imposing structure today" than the Welton Becket–designed Los Angeles Music Center located across the street. The DWP's effect on the skyline is enhanced by its canny mix of Modernist design and decorative exhibition of its use of water and power for its (at-the-time) high-tech mechanical systems.

CALTRANS DISTRICT 7 HEADQUARTERS REPLACEMENT BUILDING, 2004 —MORPHOSIS

The 84-kilowatt solar photovoltaic array on the south side of the Caltrans building consists of 897 panels and is designed to supply 5 percent of the building's energy requirements. The installation was a design collaboration between Morphosis, Arup, and Atlantis Energy and was partially funded by a grant from local utility companies.



Graw-Hill in 2006). "However, you have to change people," he adds. tzakian, whose book gauges erica's addiction to oil, doesn't cifically address buildings as much culture of energy use that has ided developing plentiful alterna- energy sources to petroleum and er fossil fuels. He lays out four ectations consumers have toward rgy: It must be cheap, clean, secure, discreet (his version of NIMBYism). change in today's culture, zakian argues, is we can no longer rd to have all four.

To take one with particular nance for architecture, the photo- aics on Caltrans certainly don't lify as inconspicuous. But photo- aics are innocuous compared to a l-fired power plant, and as loyed at Caltrans they represent architects incorporate energy gen- ion into a building without sacri- ng design integrity. (For another mple, see the building-integrated d turbines of SOM's Pearl River Tower, page 172). What PVs aren't, ever, is cheap, which explains why they are used only when required or sidized. This argument is trotted out for every architect contemplating use of PVs, but as Steven Strong, of Cambridge, Massachusetts–based r Design Consultants, says, PVs are among the few materials in build- where owners stipulate a payback. "No one expects high design to have payback demanded of an energy-efficient technology," Strong says.

Architects skirt that issue by justifying unconventional design ugh building information models that demonstrate constructability performance characteristics in precise, realistic terms. Once the design n sets energy performance criteria—such as beating the American iety of Heating, Refrigerating, and Air-Conditioning Engineers' stan- ds (ASHRAE 90.1) by 20 percent—the engineer and architect could ly different curtain-wall designs by modeling them in software pro- ms such as EnergyPlus or DOE2.

Think of the new building modeling as akin to the ergonomic rev- ion in product design in the 1980s. Auto interiors changed dramatically at time thanks to ergonomics, with the shape of each button pushed and tched like dough into gentle pillows of controllability. The tools available now help to justify design decisions in a way that is clear and economically accountable to clients. Where structural engineers have traditionally enjoyed more creative leeway—as well as architectural influence—in design decisions, mechanical engineers have been held to cost factors associated with conventional marketplace equipment. As any mechanical engineer will tell you, they are usually relegated to the m/e/p "back-of-house" spaces architects love to hate. But as each building has a more performative relationship toward its environment and energy consumption, mechanical engineers have moved outside the realm of mere specifiers and become more aligned with their architects.

At Caltrans, Eugene deSouza, a mechanical engineer in Arup's Los Angeles office, worked with Morphosis in an iterative design collaboration before settling on the custom double-skin curtain-wall system of glass-and-metal mesh. The DOE2 program output helped settle issues such as the width between the two layers, the metal skin's transmissivity, the coatings on the inner glass layer, and the cavity's target ambient temperature. DeSouza says the model showed the metal skin reduced heat gain in the building by 25 percent, which was more than enough to justify its cost. "We try to sell energy modeling with all of our projects, but we do it as an add-service," he says. "It should be an industry standard."

From style to substance

In his essay in the American Institute of Architect's recent *Report on Integrated Practice*, Thom Mayne writes that the work of his firm, Morphosis, has moved away from "styling" to focus instead on "embedding tectonic, constructional, and material design parameters." This is the key difference in much computer-enabled design and represents, at least for many engineers, the final frontier in working with those architects who generate bloblike forms with no relationship to the site's environmental conditions. "Education across the board is needed," deSouza says. "It's not being used to its full potential, by architects and engineers."

Not many firms have invested in the training and technology needed to efficiently implement energy modeling on projects. While DOE2 costs nothing to download, designers proficient in both its use and the productive interpretation of its data are rare and expensive to employ. For the vast majority of buildings, owners seldom know how a building will perform and, since electrical engineers design around projected maximum power use, they don't know how much energy it will consume until the building opens.

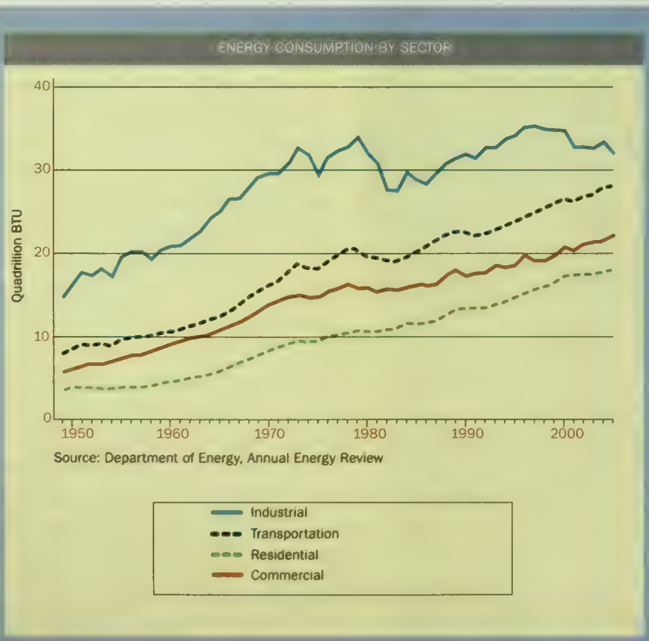
Leon Glicksman, director of the Massachusetts Institute of Technology's Building Technology Program, loves to point out that buildings consume more energy than anything else, including automobiles (according to the Department of Energy, buildings account for 70 percent of electricity use). Glicksman is trying to focus attention on building energy use among designers by developing free, simple tools to help architects make quick, informed decisions early in the design process (see http://designadvisor.mit.edu/design). "People usually fall back on what they did the last time, even if it's for a totally different climate," Glicksman says. "The architect usually does his thing for a number of reasons, not including energy efficiency, and then throws the drawings over the transom to the engineer. Engineering shouldn't be the only thing that inspires design, but it should be toward the forefront."

> WITH ENERGY MODELING LEADING THE WAY, IT SEEMS ENGINEERING IS THE NEW ARCHITECTURE

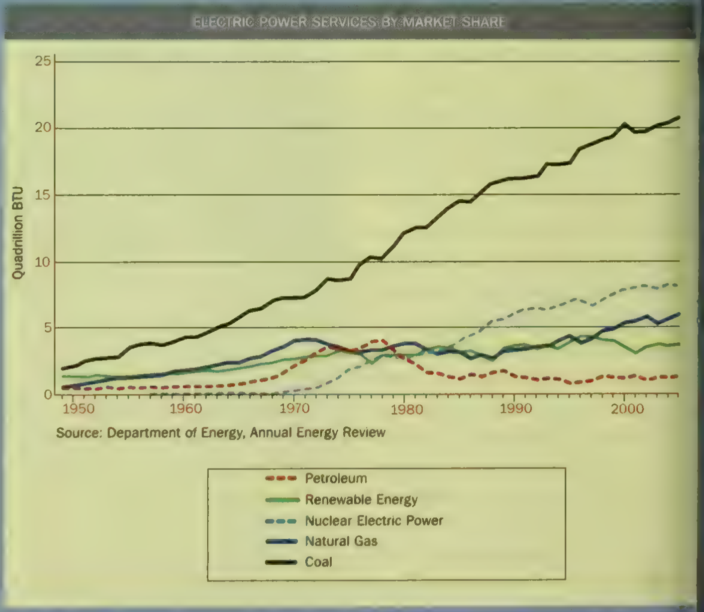
Education, like it or not

Like Arup's deSouza, Glicksman points to a lack of education—further impaired by funding shortages for research—as an impediment to widespread implementation of energy-efficient-design strategies. Architects and engineers, however, have had to educate themselves to the issues as some state and local regulations have forced the use of new technologies. For example, two decades ago, incandescent downlights were standard practice in residential kitchen construction. Today in California, only energy-efficient compact fluorescent downlights meet the state's Title 24 energy code for that use. Title 24 regulates building-envelope ratings, lighting-power densities (watts per square feet), and building-equipment operating efficiencies, among other things. It is often used as a benchmark, like ASHRAE 90.1, against which designers measure the sustainable performance of projects. The U.S. Green Building Council's LEED rating program relies on such standards for weighting its points system for sustainable design.

The USGBC, ASHRAE, and the Illuminating Engineering Society of North America (IESNA) are collaborating on Standard 189, which would eventually act as an enforceable green building code. In addition, the American Institute of Architects issued a sustainable practice position paper

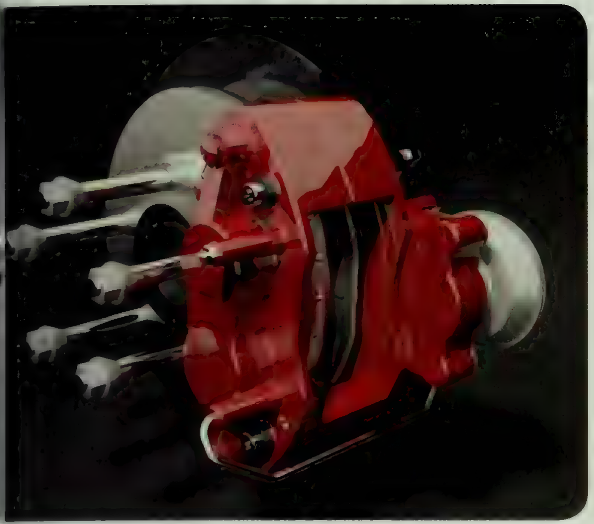


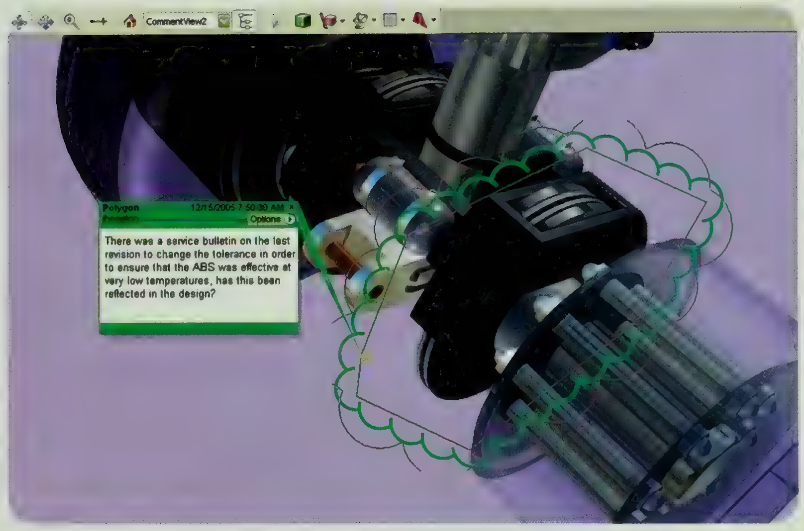
Source: Department of Energy, Annual Energy Review



Source: Department of Energy, Annual Energy Review

The Department of Energy's 2005 energy-consumption reports illustrate how overall energy use continues to climb, even though on a per capita basis it has leveled off in progressive states like California and New York. Renewable energy sources for electricity remain in a minority when compared to coal and nuclear power.





There was a service bulletin on the last revision to change the tolerance in order to ensure that the ABS was effective at very low temperatures, has this been reflected in the design?

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in late 2005, which became the framework for the U.S. Conference of Mayors' 2030 Challenge. The Challenge calls for a 50 percent reduction in consumption of fossil-fuel energy for all new and renovated buildings, accompanied by a 10 percent reduction in consumption every five years until 2030, when conceivably the country would be carbon neutral. It's an ambitious proposition, but it will have to wind its way through the legislative process before it can be enforced.

UNITED STATES COURTHOUSE, SEATTLE, 2005 —NBBJ ARCHITECTS

The federal government wanted as much daylight as possible in each courtroom, which led NBBJ to rely on complex energy modeling data for implementing a ventilation system that could efficiently accommodate the expanses of glass on the building's 23 stories. Seattle's mild climate and sparse sunshine helped matters greatly.

One nation, under green

Until that happens, public and institutional buildings—where local, state, and federal agencies and nongovernmental organizations aren't held to the whims of the commercial building market—will continue to be the main laboratory for high-performance sustainable design in the U.S. These projects combine complicated building programs with generally higher budgets, which allow more study behind each architectural decision. For its design of the LEED Silver–rated United States Courthouse in Seattle, NBBJ Architects depended on energy modeling, as well as computational fluid dynamic (CFD) modeling, to deliver the client's expected level of building transparency (i.e., the glass facade) without producing an energy hog.

A CFD model of the lobby illustrated how air delivered from the floor could pool within the first 8 feet above the finished floor, which eliminated the need to provide enough air-conditioning for the entire space. A conventional design would have dumped air from the ceiling based on the volume of the space; when coupled with the expected heat gain from the glass facade, the demands on the building's chiller would have been enormous.

"There seems to me to be an infinite number of choices before the design team and the architect have enormous influence on those decisions," says Steve McConnell, FAIA, NBBJ's design principal. "You have to contemplate an intelligent approach to these decisions—it's not just an aesthetic process." So while energy modeling justified the in-floor ventilation system, it also helped determine the low-E glass coatings, the low-iron glass for greater transparency, and the control of daylighting. McConnell says such modeling was expected from day one on the project. "In a typical project, it takes an extra effort to package these ideas," he says.

DWP not DOA

It does seem that engineering is the new architecture. It's worth considering, not on the literal level of engineering actually replacing architecture, but in terms of how we've arrived at a place where design and construction technologies are coming together to address a pressing geopolitical issue—energy consumption—in ways unimaginable 40 years ago. Even the Los Angeles DWP has learned from itself, as lights no longer remain on 24 hours a day, a solar photovoltaic array blankets its covered parking lot, and a 250-kilowatt fuel cell was installed in 2000. And David Martin's family firm has changed the way it works, having designed the energy-efficient California EPA Headquarters in 2001, which was certified LEED Platinum in 2003. Martin says the DWP was built when technology was perceived as the best thing in the world, but given recent evidence, little about that notion seems to have changed. If anything, it has been slightly altered: Technology is now perceived as the best thing as long as it cuts your energy bill. ■

Photo credits: Atrium Skylight at the Gaylord Texan Resort & Convention Center
Architect: Hnedak Bobo Group of Memphis, TN. Courtesy The Vistawall Group

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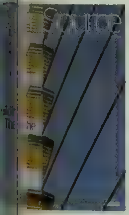
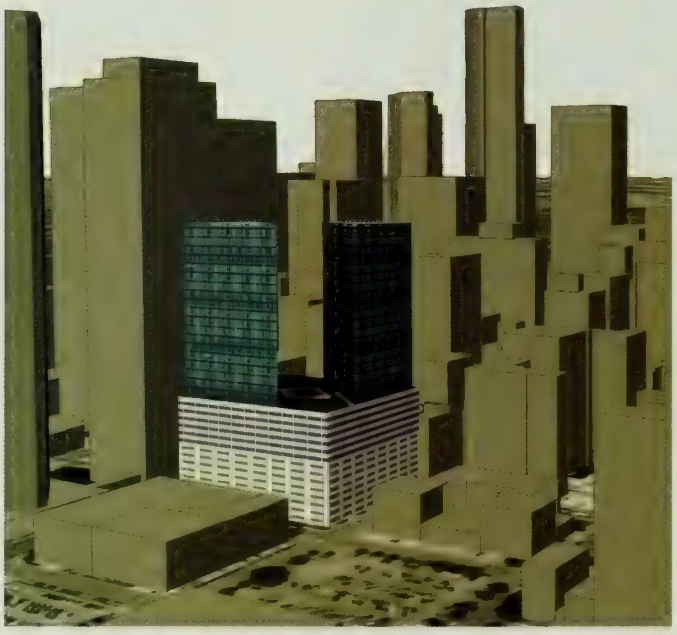


In Search of the Zero-Energy Holy Grail

A REAL-WORLD YET HYPOTHETICAL DESIGN PROBLEM IN A TOUGH CLIMATE CHALLENGES ENGINEERS TO THINK ABOUT THE MEASURES NECESSARY FOR REDUCING A BUILDING'S ENVIRONMENTAL FOOTPRI

By Joann Gonchar, AIA



When ARCHITECTURAL RECORD's editors "commissioned" a team from Arup to design a zero-energy building to present at this year's Innovation Conference, held in New York City in October, we did not specify a site, a client, a program, or a budget. But, even though we left the assignment open for the engineers to define, they set for themselves a very real-world, challenging design problem.

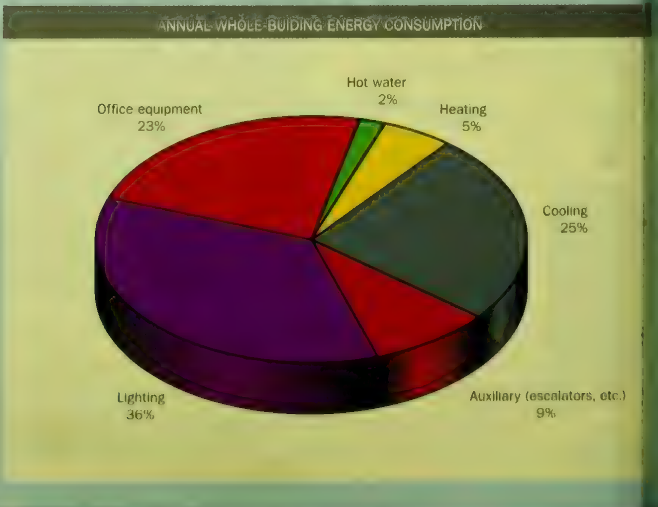
To examine strategies that might be used to reach zero, Arup developed a scheme for a generic mixed-use project in hot and humid Houston. "We decided not to pick a climate that was too easy," said Fiona Cousins, Arup principal and mechanical engineer. It is much simpler to achieve a building that operates without fossil fuel in a dry climate, "where winters are warm, summers are cool, and nighttime temperatures are moderate," she explained when presenting the hypothetical building at Innovation.

Cousins and her colleagues could have chosen to design a zero-energy hut in a field but instead developed a scheme for a million-square-foot building that included six stories of parking, eight stories of offices, and 20 stories of residential space. In terms of configuration, they hewed closely to buildings currently under construction or already existing, reasoning that program and financial considerations usually drive building form more strongly than the desire to conserve energy or to pr vide views. For example, the buildi has a deep office floor plate in ord to maximize rentable space.

The engineers first analyzed the building's annual energy consumption. Lighting accounted for 35 percent, followed by office equi ment at 23 percent, and cooling a 25 percent. Results would have been different if the floor plate was shallow and there was more oppor tunity for daylighting, said Cousins.

The team modeled the effect cumulatively adding features such underfloor air, a high-performance facade, daylighting controls, and occupancy sensors. After tallying t impact of these measures, energy use was significantly reduced but was still at 60 percent of an ASHRA 90.1 base building. For a structure

Arup's first step was to analyze the energy consumption of the hypothetical building over the course of a year (right). The team then modeled the cumulative effect of various energy-conservation strategies, including high-performance glazing and an underfloor air system. The reduction in site energy use of all of the measures taken together was only 60 percent over a code-compliant building (opposite, left). To try to reduce energy use further, the design team added cogeneration to the scheme. The cogeneration plant would actually increase the "site" energy used, because fuel use is shifted from the utility to the site. However, because power is generated more efficiently on-site, overall energy, or the building's "source energy," is reduced to 55 percent (opposite, right).



is size in this climate, "there is no agic bullet," said Cousins.

The results of this analysis rompted copresenter Gary awrence, an Arup principal and its rban strategies leader, to question e premise of the design exercise. s zero energy at the building scale eally the right question?" he asked.

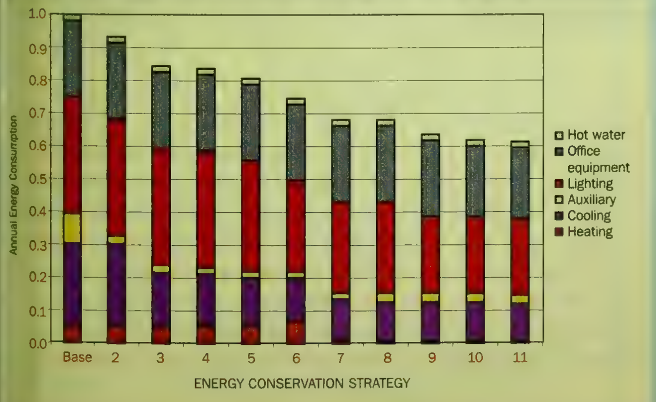
The team then turned its atten- on to the building's energy supply nd to carbon-reduction strategies, st looking at the impact of adding a ogeneration plant. The addition ifted fuel use from the utility to the te and technically increased the uilding's power use. However, ecause power loss is associated ith the delivery of utility-generated ectricity, the cogeneration plant is a ore efficient source. Cogeneration educes the "source" energy, or the overall amount of fossil fuel used, and therefore also reduces the amount of carbon dioxide emitted. The cogeneration scheme brought source energy consumption down to 55 percent of a code-compliant building.

Arup next added photovoltaics and wind turbines. But even with these site-generated renewables, the structure still consumed 45 percent of the energy of a base building, making it clear that reaching zero at the site would be very difficult without moving beyond the building.

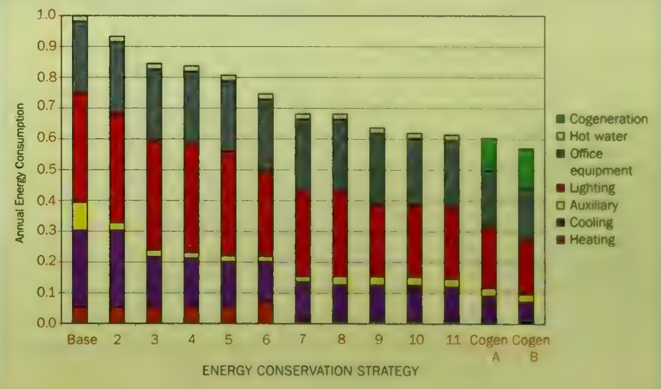
To reach zero carbon or zero energy, "we should move toward a regional renewable power infrastructure," said Lawrence, warning that even renewable resources should be used wisely. We need to "bear in mind the embodied energy required to construct such a network." ■

Zero energy has different definitions, depending on the scale of investigation. At the scale of a person using a computer, zero energy is almost impossible to achieve, unless he or she pedals to generate power. At the building scale, zero energy could be defined as a structure that uses no energy—a realistic goal for a barn or warehouse. At the global scale, where the only input to the system is solar, arguably every building is zero energy. However, this analysis ignores the world's dependence on fossil fuel, the solar income of past generations, says Arup.

WHOLE-BUILDING SITE ENERGY CONSUMPTION

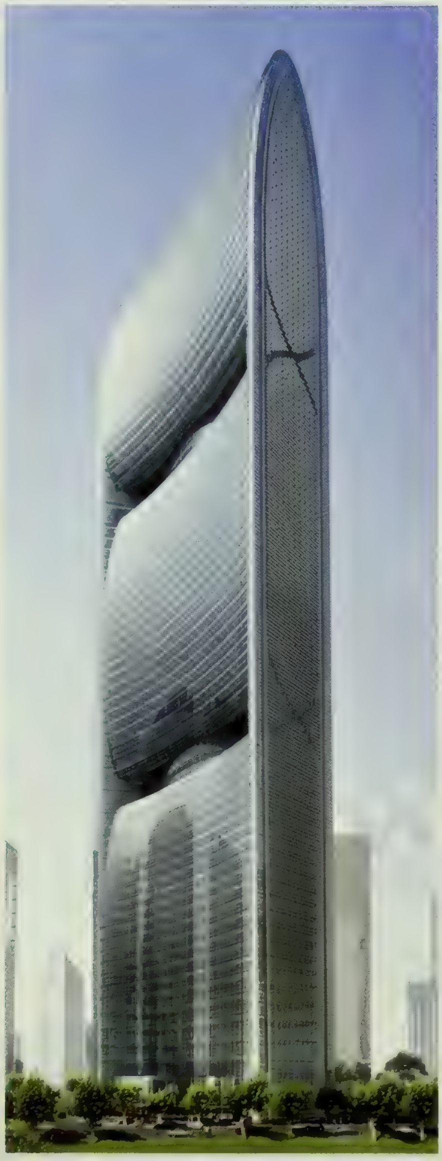


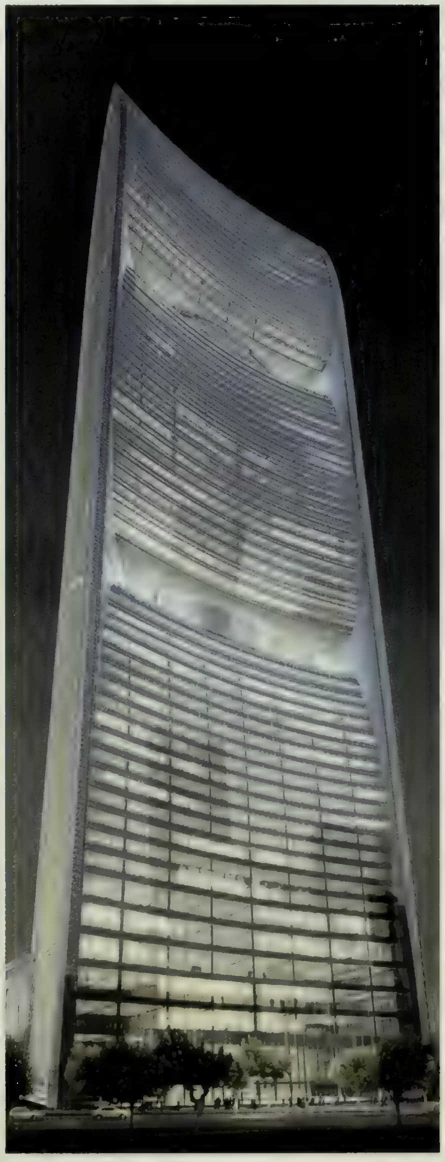
WHOLE-BUILDING SOURCE ENERGY CONSUMPTION

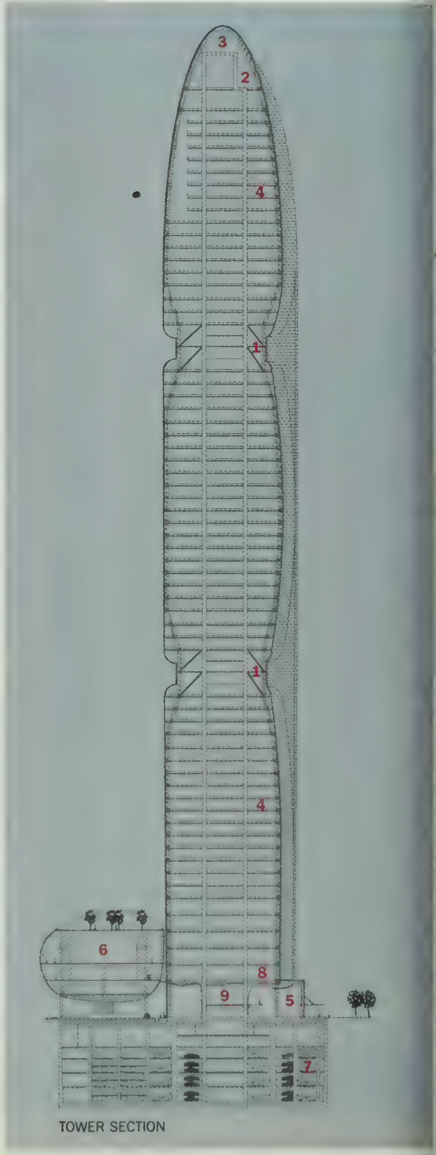


SOM's Pearl River Tower

THE STORIED DESIGN FIRM HAS SET ITS SIGHTS ON REDEFINING ONE OF ITS BREAD-AND-BUTTER PROJECT TYPES, THE CORPORATE HEADQUARTERS, INTO A MODEL OF HIGH-TECH SUSTAINABILITY







By Russell Fortmeyer

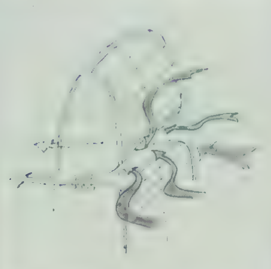
Designing towers for corporate headquarters is something Skidmore, Owings & Merrill (SOM) can do in its sleep. When the firm won a competition for a tobacco company tower in the new city of Guangzhou, China, SOM's Chicago partners decided to approach the commission as a net-zero-energy-skyscraper experiment. "We knew the tower was going to get built with or without us, so we felt we might as well design it and make it as sustainable as possible," says Roger Frechette, director of m/e/p sustainable engineering at SOM.

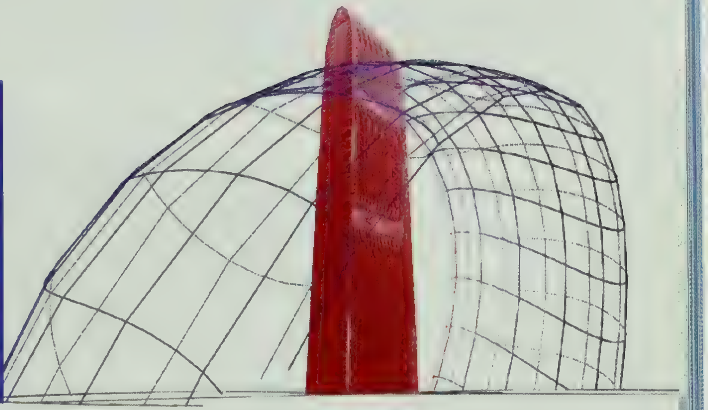
Frechette distinguishes a "net"-zero-energy building as one that

1. *Integrated wind turbines*
2. *Business club*
3. *Operable skylight*
4. *Typical office floor*
5. *Lobby*
6. *Meeting room*
7. *Parking garage*
8. *Cafeteria*
9. *Double-decker elevator*

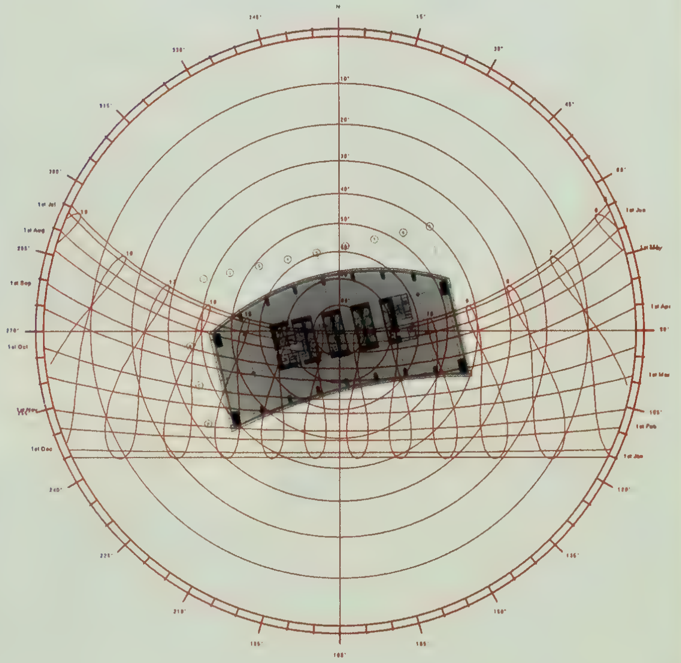
The 71-story Pearl River Tower, a headquarters for the CNTC Guangdong Tobacco Company, is scheduled to be completed by October 2009. The tower contains several different exterior envelopes, including a southern double-layer curtain wall that contributes to the HVAC system, and an integrated photovoltaic system (above left and middle). The top-floor business club has an operable skylight for ventilation.

egligibly affects its local environment. In the ase of the 71-story, 2.2-million-square-foot earl River Tower, this meant it had to conserve nd generate enough power to meet its energy emands. "There is no silver bullet," Frechette ays. "What we have is a series of small steps that et you to something that makes a difference." hese divide into four categories: reduction, eclamation, absorption, and generation.


WIND TURBINE CONCEPT


SUN PATH DIAGRAM

SOM's concept sketch for the wind turbines (above) illustrates the channeling effect of the curvilinear facade. Sun path diagram studies (top right and right) indicate how daylight is maximized on the building's south side, while late-day sun is avoided. The chart (bottom right) helped SOM gauge each strategy's effectiveness in achieving zero energy.


SUN PATH DIAGRAM PLAN

eduction

he designers began by reducing the building's nergy consumption through a combination of ne building's site orientation, a high-performance building envelope, daylighting, and building ontrol systems. By rotating to the east, the tower ikes advantage of midday sun while the effects f late-day sun on the larger, southern horizontal xposure are minimized. The south facade's w-E-glass, double-layer curtain-wall system educes heat gain, which leads to less demand on ne HVAC systems.

eclamation and absorption

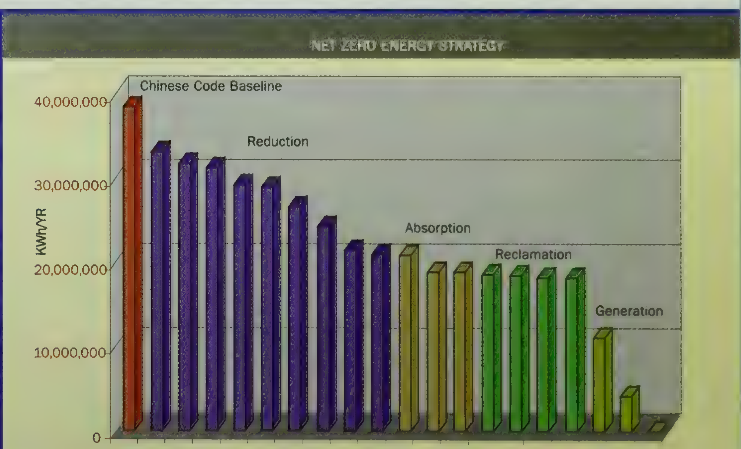
mong other tactics, the tower reclaims its energy by routing each floor's xhaust air into the south side's double-layer curtain-wall cavity. This nermal barrier of hot dry air can then be reused on the mechanical floor r passive dehumidification. Many other systems perform double duty, ncluding the chilled slab concrete vaulted ceilings in the typical offices nat enhance daylighting, as well as cool the air drifting up from the nderfloor ventilation system. The main absorption strategy takes advantage of a geothermal heat sink, so 100 degrees Fahrenheit water in the nechanical system's return loop can be cooled to 75 degrees Fahrenheit rior to feeding the cooling towers.

eneration

ccording to Rob Bolin, SOM's associate director of sustainable design, ne first three strategies reduce the building's energy use by nearly 65 percent over a baseline of Chinese building codes. To reach the final goal of et zero energy, the design team incorporated three power-generating chnologies: wind, integrated photovoltaics, and microturbines.

By far the most innovative of these elements, the wind turbines xploit the prevailing winds from the south, which generate a negative ressure at the rear, or north side, of the building. The tower's curvilinear ructure helps to force air through four turbine inlets in the facade, which OM's wind studies have predicted will speed up the wind's velocity two-nd-a-half times. Frechette estimates the turbines will produce nearly 15 mes more electricity than a typical stand-alone wind generator.

What's more, the turbines blend seamlessly into the tower's chitecture as warped cavities at mechanical floors. "The more we can ur lines, the closer we can get to true integration," Frechette says. ■



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7-181

Provided by Broan-NuTone

The Art & Science of Good Ventilation

LEARNING OBJECTIVES:
- *Understand why ventilation in the home is more important today*
- *Identify the components of systems that ensure good indoor air quality*
- *Design to achieve good indoor air quality*

3-187

Provided by DuPont Cabling Solutions

Network Cabling Specification and Installation Practices Impact Building Safety

Advances in technology offer alternatives to traditional cable materials

LEARNING OBJECTIVES:
- *Understand how communications cable impacts fire safety*
- *Compare the fire safety performance of cabling products and recommend or specify to the building users' best interest*
- *Comprehend code requirements on the removal of abandoned network cables*
- *Identify ways in which network cabling can contribute to sustainability*

9-193

Provided by DuPont Glass Laminating Solutions

How and Why Laminated Glass Solutions Meet Expanding Hurricane Code Requirements

LEARNING OBJECTIVES:
- *Be familiar with the expansion of building code requirements for impact protection on a state-by-state basis*
- *Have knowledge of the test requirements for impact resistant glazing systems*
- *Be able to identify the benefits of hurricane impact resistant laminated glass*

195-199

Provided by DuPont Tyvek

Moisture Management in Wall Assemblies: Air, Water, and Vapor Barriers

Selecting the appropriate protective barrier based on climate, codes, and design criteria

LEARNING OBJECTIVES:
- *Identify moisture management strategies for buildings*
- *Analyze design criteria for air, water, and vapor barriers*
- *Determine the impact of climate, heating, and cooling cycles on selection and location of protective barriers within wall assemblies*
- *Discuss code requirements for air, water, and vapor barriers*
- *Design wall assemblies using protective barriers*

201-205

Provided by Won-Door Products

Horizontal Sliding-Door Systems: Opening New Opportunities for Design Flexibility

Since 2000, fire and building codes allow sliding-door systems for emergency egress

LEARNING OBJECTIVES:
- *Understand the evolution of fire and building codes in the U.S., for emergency egress, fire resistance, and building security requirements*
- *Learn the current framework for fire and building codes in the U.S., which allow the use of horizontal sliding doors in any application*
- *Analyze the different uses of horizontal sliding-door systems*
- *Examine the advantages of sliding-door systems for the disabled under Universal Design*
- *Understand how horizontal sliding-door systems work and what they are made of*

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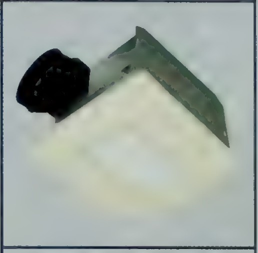

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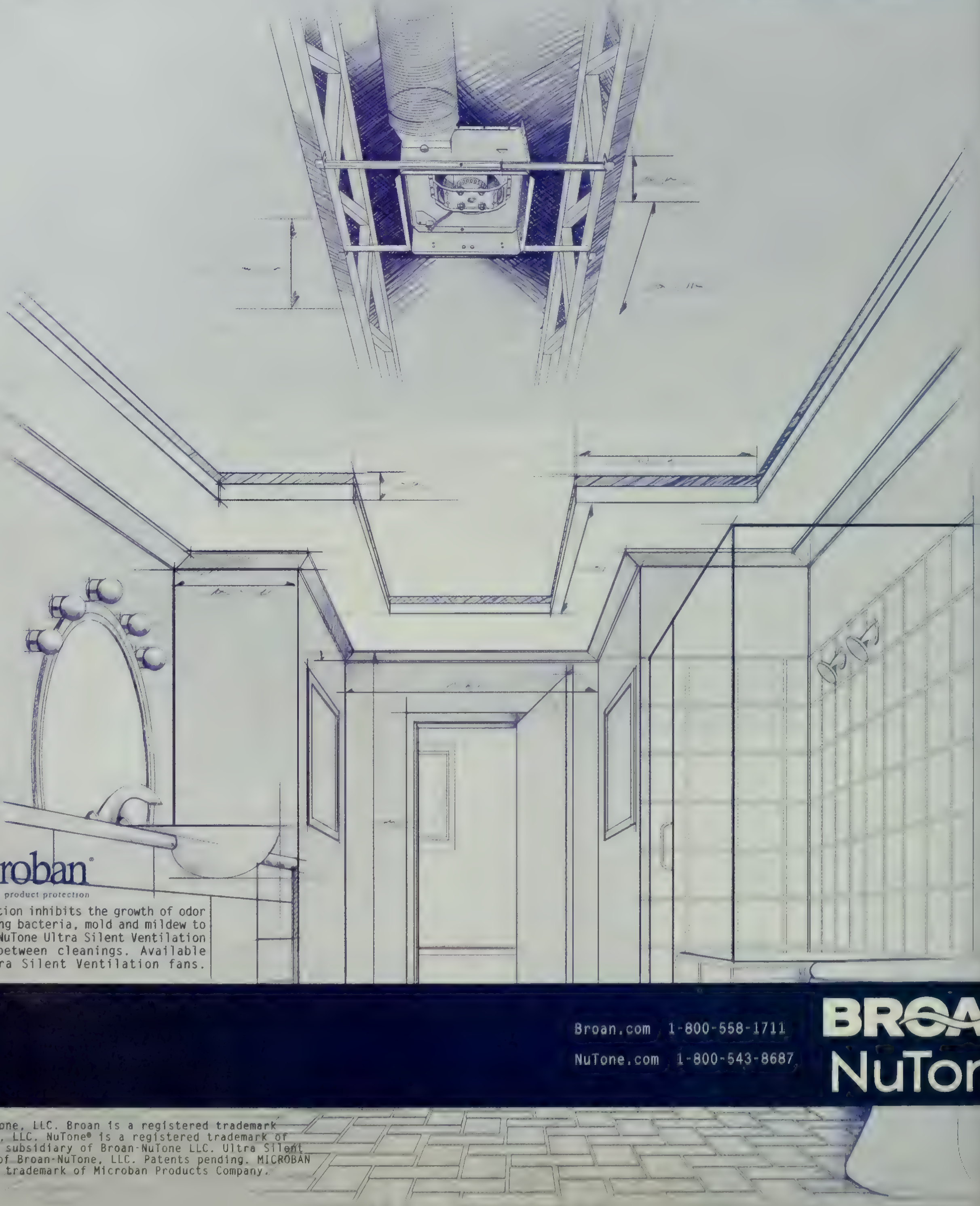

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EARN ONE HSW LEARNING UNIT

he Art and Science of Good Ventilation

Courtesy of: Broan-NuTone

vided by Broan-NuTone

oday's homes are built tightly, which makes them more energy efficient. The emphasis on energy efficiency, however, has led to another unexpected result: new homes are experiencing air quality problems unknown to older buildings.

quate indoor air quality once could be taken for granted because houses leaked enough a sufficient air supply was produced by "accidental" ventilation. Today, tighter houses redictably supply adequate air only part of the time—whenever wind and temperature ssures are strong enough to force enough air through incidental openings.

problem began to show up in the late 1970's, when tighter construction became essary because of rising energy costs. It was soon apparent that tighter homes did not ays have a healthy and comfortable air supply.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **The Art and Science of Good Ventilation.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 181, then follow the reporting instructions on page 206 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand why ventilation in the home is more important today.*
- *Identify the components of systems that ensure good indoor air quality.*
- *Design to achieve good indoor air quality.*

Within a short period of time, various methods of mechanically providing continuous fresh air for breathing appeared on the market. Generally, the products were outgrowths of commercial and institutional technologies that were modified for the residential field; in fact, most of today's products and strategies are refinements of those beginnings.

One such method, mechanical exhaust—range hoods and bath fans, operated intermittently in kitchens and bathrooms respectively, has been a standard feature in North American housing for many years. Today, the addition of **continuous** mechanical ventilation has become necessary in response to more tightly built houses.

So Why Is the Concern for Poor Indoor Air Growing?

Poor quality indoor air aggravates respiratory ailments. The incidence of asthma has increased dramatically over the last 25 years in the U.S.

An estimated 20.5 million Americans suffer from the ailment, including almost 6.2 million under the age of 18. According to the American Lung Association (ALA), asthma is the seventh-ranked chronic health condition in the United States and the leading chronic illness of children, making their airways (bronchial tubes) particularly sensitive to irritants.

Asthma causes almost 500,000 hospitalizations and about 4,000 deaths annually. Health care costs associated with asthma are estimated at $16.1 billion a year. The number of deaths due to asthma, the number of Americans diagnosed with asthma, and the health care costs of asthma continue to increase each year. Emergency room visits due to asthma reached nearly 2 million in 2000, with hospitalizations at nearly half a million. Poor air quality is suspected to be a main culprit in the rise of respiratory ailments over the past two decades.

Contamination and excess moisture are chief causes of so-called "sick building syndrome" and are responsible for a long list of allergies and pathologies. Concentration of toxic or harmful substances—like dust, pollens, spores and bacteria, as well as pathogenic germs and bacilli increase dangerously when there is a lack of fresh air.

U.S. Environmental Protection Agency (EPA) studies of human exposure to air pollutants indicate that indoor levels of pollutants may be 2-5 times, and occasionally more than 100 times, higher than outdoor levels. These levels of indoor air pollutants are of particular concern because most people spend about 90% of their time indoors.

Modern buildings clearly have a problem in providing a healthy or even appropriate indoor environment. The EPA concedes that about 30% of new or renovated buildings have serious indoor air quality (IAQ) problems, and ranks IAQ as the nation's most prominent environmental problem.

Controlled ventilation, properly considered building design, and the use of healthy building materials can provide good indoor air quality and help to solve this problem.

How Much Air Do We Need?

Air for breathing is such a basic human need that it is surprising it was not the first requirement written into all building codes. The human body can go for days, even weeks without food, a few days without water, but only minutes without air. And the air must be of a certain quality.

Research done in the 70's and 80's measured the condition of indoor air, the relationship between the condition of the air and various indoor and outdoor influences, and the amount of outdoor air required for human comfort and health.

Today's accepted standard reflects the consensus of many experts in industry and science. This standard is ASHRAE Standard 62.2-2004, *Ventilation and Acceptable Indoor Air Quality in Low-Rise Residential Buildings.* This standard was developed by the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE). The amount of air that needs to be ventilated can be calculated using ASHRAE's continuous ventilation formula. The formula is as follows:

$$Q_{fan} = 0.01A_{floor} + 7.5(N_{br}+1)$$

where

Q_{fan} = fan flow rate cubic feet per minute (CFM)
A_{floor} = floor area in square feet (ft^2)
N_{br} = number of bedrooms; not to be less than one

To provide an example, a 3000 square foot home with 3 bedrooms would require an average ventilation rate of 60 CFM over every 24 hour period.

Mechanical ventilation is the only predictable method of furnishing air for breathing and comfort.

How Do We Control the Air Contamination?

There are literally thousands of air pollutants and potential air pollutants. Human occupants produce some of these contaminants, including CO_2, moisture, particulates, and odors. Building materials and other indoor items such as furniture also produce a variety of chemical and particulate pollutants.

In general, the contaminants that concern us are either particles or gases. The list of particulate contaminants includes:

- Mold Spores
- Pollen
- Pet Dander
- Dust
- Smoke
- Grease Particles

Good quality filters may control particulate contaminants. The most effective filtrati tools, however, simultaneously circulate and filter indoor air while bringing in from outdoors.

Among the gaseous contaminants are:

- Excess Moisture (humidity)
- VOCs (Volatile Organic Compounds - thousands of them)
- Formaldehyde
- Carbon Monoxide
- Carbon Dioxide
- Odors

Gaseous contaminants may be controlled through continually operated exhaust fans or h recovery ventilators (HRV) and energy recovery ventilators (ERV), both of which bring fresh air from the outside, dilute contaminants and exhaust them.

High quality exhaust fans can be used for continuous use. A very important aspect of f designed for continuous use is that they are quieter and more energy efficient than f designed for intermittent use. Also, it is generally accepted that continuous ventilation w a single exhaust fan does not provide proper ventilation distribution throughout the hom

Affordable exhaust fan systems now exist that integrate multiple quiet and energy effici fans installed throughout the home. These fans can be located in bathrooms, laundry roo and workshops. The individual fans communicate with each other using high performa home automation protocols over the power lines of the home. The intermittent usage of individual fans is deducted from the total average ventilation required. These systems th automatically operate fans distributed throughout the home to meet the ASHRAE standa

The Measurements

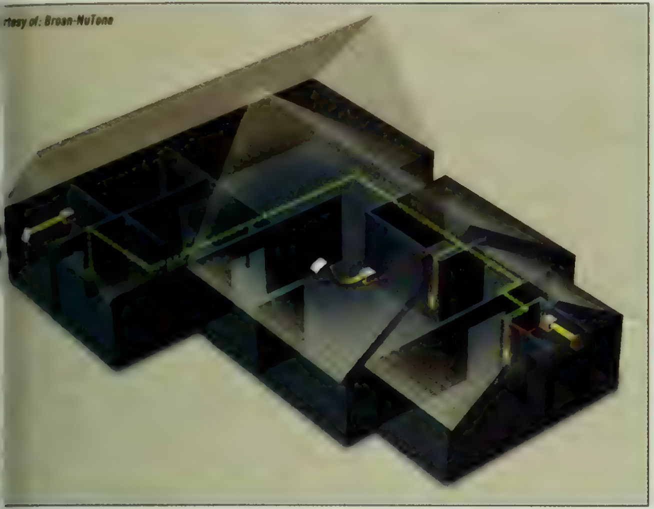
Ventilation brings with it a few units of measure that may need explanation. The explanations and definitions in this section are used throughout this paper.

1. Cubic feet per minute (CFM) is the common measure of airflow. It reflects the number of cubic feet of air flowing in one minute. The Standard International (SI) system uses liters per second (l/s). One CFM is about one-half l/s.

2. Static pressure, usually measured in inches of water, is a measure of duct resistance. When used as part of a fan rating, it is the duct resistance anticipated when rating the airflow of the fan; if the actual duct system in an installation provides more resistance, the fan will produce less (CFM of) airflow. The SI system uses Pascals (Pa); 0.1 inches of water is about 25 Pascals.

3. Sones are a common unit of measurement that translates decibel readings into numbers that correspond to the way people sense loudness. The average quiet refrigerator operates at one Sone. Two Sones sounds twice as loud as one Sone.

Courtesy of Broan-NuTone



rtesy of: Broan-NuTone

recovering the energy to heat in the winter and cool in the summer, an ERV or HRV can vide clean fresh air continuously while helping to keep energy costs low. These units sfer the heating and cooling energy from the exhaust stream to the incoming fresh air. ERV will also recover moisture from the exhaust stream when it is dry in the home.

ERV/HRV is a good solution if the annual cost of operation is a consideration, although ay take a period of time to pay back its higher initial installation cost. The ERV/HRV ection process must consider if the air handler must run to distribute the air. A number RV/HRVs exist on the market that stand-alone and operate without the use of the air dler.

ause the ERV has an energy transfer (enthalpic) core, excessively low humidity is less ly to be a problem, thereby reducing the need for a separate humidifier and its siderable energy cost. HRVs and ERVs also provide balanced ventilation that avoids blems associated with the home's pressurization or depressurization.

use of an HRV or ERV to provide low-level general, effective ventilation at an energy cient rate must be supported with intermittent bath and kitchen ventilation for source trol.

tinuous ventilation equipment must run whenever the house is occupied, especially ing spring and fall. Windows may be opened, but unless there is a breeze to ensure tilation, it is easiest and best to just let the unit run, even if windows are open. dental (or accidental) ventilation is driven by natural forces and they are least effective n the temperature difference between indoors and outdoors is the smallest. That is n mechanical ventilation is needed the most.

oisture Can Be Critical

e have come a long way in the past 10-15 years in our understanding and reduction of eous contaminants, and the impact of furniture, wood products and building materials t, historically, out-gassed VOCs," says David W. Wolbrink, former vice president of earch and development for the nation's leading residential ventilation manufacturer.

cess moisture still exists in the home. In fact, the problem has grown more severe," lbrink says.

s essential to understand moisture in designing and operating a home in a way that serves good indoor air quality.

Swings in the moisture level—in either direction—can lead to serious problems.

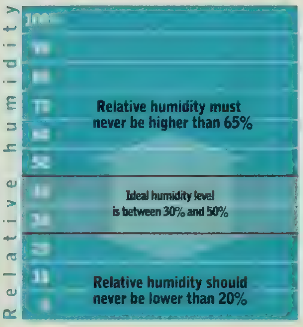
Ideally, indoor relative humidity should be held within a range of 30-to-50 percent. In **hot humid climates** that may be difficult, but relative humidity must absolutely **never** be permitted to be **above 65%.** In **cold dry climates**, relative humidity should be **no lower than 20%.**

Less than 30 percent relative humidity can cause wood to shrink, result in increased dust, cause respiratory, throat and skin irritations and create static electricity.

As the outside temperature drops, so does the recommended relative humidity inside the home, because during cold weather higher humidity will lead to excessive moisture and condensation, which can lead to mold and mildew.

Mold can grow on surfaces in any climate at humidity levels above 70 percent.

Water intrusion problems leading to mold buildup often are a result of faulty building envelope design and construction that permits water to enter the wall from inside or outside and trap it so the inside of the wall can't dry out. Crawl spaces also are common sources of moisture buildup. More new homes than ever today are gabled, and intersecting rooflines can be another problem area if errors are made in roofing or flashing installation.



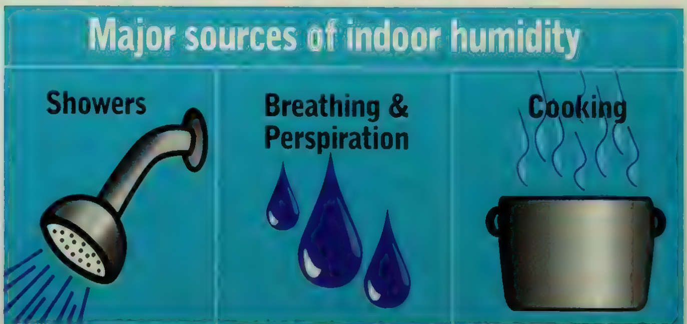
"Moisture—and resultant mold problems—are the subject of more current research than any other area of construction," says a spokesperson for a U.S. ventilation manufacturer. "Ventilation won't overcome the problems of bad design, but ventilation, coupled with good design, will create a very good indoor environment."

The House is a "System"

The modern home is an interactive system. The envelope design, infiltration/exfiltration and HAC system must be appropriate for the climate to support effective ventilation. Assuming that they are, the house will have these things in common: people and their activities are the major source of indoor humidity: showers are the greatest contributor; breathing and perspiration, second; and cooking, third.

Showers and cooking always produce high concentrations of moisture for a short time in predictable spots, and are best controlled by intermittent "spot" ventilation.

Breathing and perspiration, in contrast, take place throughout the house and are best controlled by general continuous ventilation.



Keeping these two quite different strategies in mind makes control of excess moisture more logical.

If high moisture concentrations produced by the shower or cooking are not controlled at the source, they are dumped into the whole house. That causes excess moisture and makes it difficult if not impossible to provide good indoor air quality.

The key is to ensure that homeowners will use what has been installed. The quieter the fans are, for instance, the more often they will be used. It is important to remember that the simpler the design, the more likely it is to be effective. For spot ventilation, some type of automatic control would be beneficial.

Today's exhaust fans are quieter and more energy efficient. Some manufacturers now offer a variety of Energy Star-qualified ventilation fans designed for use not only in bathrooms and kitchens, but also in dens, utility rooms, offices, conference rooms and recreation rooms. Recently developed models use 65 percent less energy than standard models and may qualify for local utility rebates. Energy Star-qualified models now incorporate high-efficiency centrifugal blowers that provide virtually silent performance.

Newer models have myriad light options – including incandescent or fluorescent and night lights, may be recessed to match overhead lighting and some incorporate heaters. The style and operation of these new models encourage their installation in laundry rooms, media rooms, exercise rooms, basements, craft rooms, workshops, hallways and closets.

"Even the best designed home indoor air quality system is of no value if it is not used," says a manufacturer's spokesperson. "Humidity sensing fans are the best solution we have to that problem."

What About the Bathroom?

Contemporary bathrooms are, generally speaking, larger, and many new master baths now include showers with multiple heads, whirlpool baths and steam rooms, all of which contribute additionally to the humidity load and create a need for increased ventilation. Larger rooms generally have more than one fan.

The most important thing to remember with regard to bathrooms is that showers are the greatest contributor to excessive humidity and that homeowners can save the house from excess moisture by running the fan for 20 minutes after each shower.

Self-sensing humidity fans operate automatically when humidity rises rapidly and tur themselves off 20-30 minutes after humidity returns to where it was before.

There are two important things to understand about humidity sensing fans. First, the bes models sense the CHANGE in humidity, not the humidity level itself, so climates that ar naturally more humid will not trigger the fans to operate unless over-ridden by th occupant. And second, sensitivity levels and after-run times can be personally set by th home's occupants.

Installing a wall timer switch allows the fan to remain on long enough to remove the exces moisture without having to return to switch it off.

Location of the bathroom fan is also a critical factor in ensuring proper performance. Th first choice should be over the shower. If this is possible, select a fan UL-listed for tub o shower installation.

Where that is not practical, one should visualize a line from the bottom of the bathroo door and the heating/cooling register (which are the exhaust fan's air supplies) to th ventilator. Make certain that that line passes through the steam cloud generated by th shower. Air flowing through the room along that line will capture the excess moisture fro the shower.

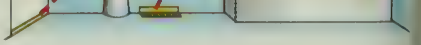
Since intermittent contaminants are produced in high concentrations, a high ventilation rat is required to keep them from dispersing throughout the house. This explains the relativel high airflow rate of typical intermittent kitchen and bathroom ventilation.

How much bathroom ventilation do you need?

Ceiling Ht x .1375 x L x W = CFM

This is the Minimum Recommended CFM

The Wauconda, Ill.-based Home Ventilating Institute (HVI) recommends eight air change per hour for bathrooms. This recommendation is based on both years of experience and c calculated needs. Performance has been tested through research at Texas A&M, and th results show actual contaminant concentration follows theoretical dilution calculatio with excellent reliability. Exceptions to the recommendation may be considered in unusual situations such as when a bathroom is unusually large. In the case of an extremely large bathroom, multiple fans may be required to effectively handle moisture and odor at their respective source.



Bath fans must be sized to meet HVI's recommended 8 ACH. Calculate bathroom fan size CFM in the following way:

- Take the height of the ceiling and multiply it by .1375. Take this figure and multiply the square footage of the room. This will equal the recommended CFM's. (Example-1 x 12' room with 10' ceilings. 10' x .1375 = 1.37 x 120 square feet = 164 CFM's.)
- This will give you the minimum recommended CFM. ■

CLICK FOR ADDITIONAL REQUIRED READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0612broan-1.asp***

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

LEARNING OBJECTIVES

After reading this article, you should be able to:

Understand why ventilation in the home is more important today.

Identify the components of systems that ensure good indoor air quality.

Design to achieve good indoor air quality.

NSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self-report form on page 206. Follow the reporting instructions, answer the test questions and submit the form. Or use the Continuing Education self-report form on *Record's* website—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. New homes are experiencing indoor air quality problems unknown to older buildings.
- **a.** True
- **b.** False

2. The amount of air that needs to be ventilated can be calculated using _____ continuous ventilation formula.
- **a.** ENERGY STAR's
- **b.** ASHRAE's
- **c.** EPA's
- **d.** HVI's

3. High quality exhaust fans can be used for continuous use.
- **a.** True
- **b.** False

4. Two very important aspects of fans designed for continuous operation are that they are (select two)
- **a.** larger
- **b.** quieter
- **c.** more energy efficiency
- **d.** stylish

5. What is the ideal range for indoor humidity?
- **a.** 20-40 percent
- **b.** 35-60 percent
- **c.** 30-50 percent
- **d.** 45-70 percent

6. Excess moisture makes it difficult, if not impossible, to provide good indoor air quality.
- **a.** True
- **b.** False

7. The Home Ventilating Institute (HVI) recommends ______air changes per hour for bathrooms.
- **a.** two
- **b.** four
- **c.** six
- **d.** eight

8. Bathroom fan size in CFM may be calculated by multiplying the height of the ceiling by ______ and then multiplying that sum by the square footage of the room.
- **a.** .1375
- **b.** 2.1
- **c.** .75
- **d.** 1.1

9. Cooking grease and smoke are easily distributed throughout the home if not immediately and completely removed at their source.
- **a.** True
- **b.** False

10. Cross drafts from nearby doors and windows will reduce the effectiveness of the fan located in a peninsula or island.
- **a.** True
- **b.** False

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letwork Cabling Specification nd Installation Practices Impact Building Safety

lvances in technology offer alternatives to traditional cable materials

vided by DuPont Cabling Solutions

housands of fires occur in U.S. business facilities every year. According to the National Fire Protection Association (NFPA) reports, each day 323 non-residential structure fires will occur, injuring four people and causing $7.4 million in property damage. In a fire, les can be a significant source of fire load and smoke. Smoke can obscure evacuation tes and is the leading cause of damage to electronic equipment found in local area works and data centers. Smoke damage is possible even when the source of the fire is tant from the data center. In fact, in a typical data center cabling is often the largest gle source of combustible material. Combustible cabling may quickly spread fire and oke throughout a building, putting workers at risk. As the smoke spreads, it carries ductive microparticles and moisture throughout the building, which contaminates ipment by creating shorts and bridges in the microelectronics. The result can be mediate equipment failures, or failures that can take days or weeks to manifest as rupted data and sudden system failures. It is smoke, rather than flames, that does the l damage. In fact, studies attribute 95 percent of the equipment damage in a typical data ter to smoke. Data center fires are not uncommon—in the U.S. alone, an estimated 400 a center fires occur annually.

e concerns are legitimate and rising about the growing amount of combustible cables sent in commercial buildings required to service the ever-increasing demands of IT works. More workstations, each with expanding capabilities and increasing bandwidth uirements, are taxing our infrastructure. Communications cabling, which carries portant data packets to and from computer rooms is as common in building ceiling ities as duct work. While most users select communications cable on the basis of its ctrical performance requirements, fire rating factors are often overlooked beyond what minimally required by code. This fact places each building at a greater fire risk with each w installation of communications cable.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Network Cabling Specification and Installation Practices Impact Building Safety.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 187, then follow the reporting instructions on page 206 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand how communications cable impacts fire safety*
- *Compare the fire safety performance of cabling products and recommend or specify to the building users' best interest*
- *Comprehend code requirements on the removal of abandoned network cables*
- *Identify ways in which network cabling can contribute to sustainability*

Courtesy of: DuPont Cabling Solutions

Communications cabling is governed by NFPA's set of model codes as adopted by most local jurisdictions in the U.S. in local building and fire codes, then enforced by the local authority having jurisdiction. The question of who is ultimately responsible for code compliance is an issue requiring legal counsel. In the event of a fire, both the building owner and tenants are likely to bear some responsibility. However, these codes represent minimum safety requirements, leaving meaningful improvements in the fire safety performance of network cable in the hands of a few key groups of people, architects among them. Not only is knowledge of specification options for best in class fire safety performance a competitive advantage, it is central to an architect's understanding of appropriate standards and regulatory requirements. In short, equipped with a comprehensive working knowledge of cabling fire safety issues, architects can design buildings which pose lower risks and provide more secure, sustainable environments.

Combustible cabling may quickly spread fire and smoke throughout a building, putting workers at risk.

Fire Evidence

The communications cable most often used in commercial buildings is called plenum cabling. It is designed for use specifically in hidden spaces within dropped ceilings that handle return airflow to HVAC equipment—the plenum space—and distributes the network from telecommunications rooms to the users' workstation. Since the 1970s, several

Courtesy of: DuPont Cabling Solutions

significant fires occurred where cable running in plenum spaces greatly increased the severity of the fire damage. A fire that occurred in offices at the World Trade Center in 1975 brought the fire hazards associated with cables installed in plenum spaces to the fore. According to a report by NY Board of Fire Underwriters, "The worst and most hazardous condition is when wires and cables with combustible insulation are run through plenums to service the floor above. This provides a double hazard by introducing combustibles into the air conditioning. It should be noted that the mass of cables to supply communication equipment in many office occupancies is sufficient to sustain a substantial fire. While an individual cable is extremely difficult to ignite, a group of cables lying parallel will burn intensely, similar to the situation that exists with a group of logs in a fireplace."

...over the past two decades, the amount of electronics in a typical office building, hospital, school, or data center has increased dramatically.

In May 1988, a fire in the Bell Central Office in Hinsdale, Illinois caused $90 Million in damages and a 17-day outage; calls were disrupted for four weeks. An NFPA fire investigation recounts a chilling scenario: "Fueled by the insulation, the fire quickly spread into the groups of cables in the cable tray and eventually emerged at the top of the cables. The fire was able to travel horizontally both in the confined spaces between cables in the trays and in an open space between the top layer of cables and the ceiling."

In October 1996 a fire at Rockefeller Center in New York was described in *The New York Times*: "The fire, reported at 3:59AM, jumped helter-skelter from floor to floor following the snaking utility products, feeding on insulation and thick cable-housing and breaking out into office here and there, fire officials said."

A United States Fire Administration, National Fire Data Center report about a 1991 fire at One Meridian Plaza in Philadelphia found that "Within the telephone and electrical rooms, unprotected penetrations of the floor assemblies allow conduits and exposed wires to travel from floor to floor. Several breaches of fire-resistance rated construction were observed in the walls separating the electrical and telephone rooms from the ceiling plenums and occupied spaces on each floor."

From these and other fires, valuable lessons were learned. Prime among them are the fa
that the ignition source is often electrical failure, and cables can add significant fuel loa
and spread fire rapidly along the cable pathways and spaces. Investigators furth
concluded that even small fires can cause extensive smoke damage, and combustib
materials in concealed spaces are of great concern.

Cabling's Contribution to Fuel Load and Smoke

Electronic communications systems began to be installed on a large scale in the 1970s ar
1980s. Seeking ways to cost-effectively run cable through a building, cables were run fro
floor to floor, through vertical air shafts or other openings. Within a floor, cable w
installed above raised ceilings, below raised floors, or within horizontal air ducts,
plenums, obviating the need to break through walls, and enabling cable to be installed o
of sight and out of the way. Unfortunately, and not realized at the time, was the fact th
these vertical and horizontal runs maximize the spreading of smoke and fire in the buildin
Smoke and fire quickly rise to higher floors via unobstructed vertical risers. But becau
these vertical spaces have a higher fire rating and are not part of the building's HV
system, fire safety requirements for vertical riser cable are less stringent than those f
plenum cable. The horizontal plenums, often used to carry forced-air heat and
conditioning, can now carry smoke to all ventilation ducts. The pressurized air flow with
a plenum served to force-feed and accelerate the fire with oxygen.

Compounding matters further, over the past two decades, the amount of electronics in
typical office building, hospital, school, or data center has increased dramatically. As
result, there has been a surge in the cabling that connects these systems. In fact,
estimated 60 billion cable feet of local area network cables has been installed in horizont
concealed spaces during the last 20 years in the United States alone. Granted wirele
communications and networks are on the rise. Even so, physical cabling still represents t
linchpin of a communications or computer network—wireless included. Stoked by ev
increasing needs for IT systems, the use of cabling can only continue to soar.

Combustible Components of a Typical Plenum Cable

Plenum cables—whether copper or fiber optic—contain large quantities of plastics, a
many plastics will burn and/or generate great amounts of smoke in a fire. A typical cab
for data or voice transmission has two main components, a cable core made up of insulat
copper wires twisted in pairs and a jacket. The industry standard cable is 4-pair UTP, wi
four twisted pairs of insulated wire, with "U" meaning "unshielded" and "TP" meani
"twisted pair." More than half of this cable is potentially flammable plastic. In an office wi
100 workstations each with two cables run 100-feet (average) to each workstation c
contain as much as 300 pounds of combustible cabling materials in the ceiling or fl
plenum. Considering multiple floors and high-density areas like computer equipme
rooms, it is easy to understand cabling's significant contribution to a building's fire lo
Cable insulation and jacketing material are an undeniably significant fuel source, and, wh
they are heated, can generate a tremendous amount of smoke—a scenario with danger
repercussions for building occupants and equipment.

Fuel Load of Commonly Used Cable Insulation and Jacketing Materials

The cabling industry has been challenged by developing materials that excel at three, oft
divergent, goals: electrical transmission properties; reasonable processing parameters
productive cable manufacture; and high performance ratings on flammability, smo
generation and fuel load.

The three most commonly used materials in cabling today are Polyethylene (PE), polyvi
chloride (PVC), fluorinated ethylene propylene (FEP), all of which have a significant imp
on the level of fire hazard. When comparing the performance of each, the first, PE, off
excellent electrical properties for insulating copper. However, in a fire, it is hig
combustible, extremely high in fuel load, and readily generates dense smoke, which crea
significant life and equipment fire safety hazards and risks. The second, PVC, has p

ctrical properties but offers better fire performance than PE; yet, it alone is difficult to lt-process and has poor flexibility in cable applications.

resolve these issues, other materials are added. The resultant PVC compound offers ter electrical performance, greater flexibility, and are easier to melt when the cables are ufactured, compared with PVC alone. However, while PVC compounds represent an pensive material that creates a relatively safe jacket for most plenum cables, it remains bustible in nature.

tly, FEP has electrical insulation characteristics on copper equal to PE, and needs no itives to meet fire safety standards. Meeting the highest performance criteria for flame ead, fuel load, and smoke generation, FEP has inherently good fire and smoke racteristics that help cables meet code and insurance requirements by a comfortable gin. In fact, PE and PVC, which are combustible materials by the NFPA standards, can ease the combustibility of a cable, and contribute up to eight times as much fuel as FEP.

oke Generation and Flame Spread Properties of Commonly Used Cable Types

all communications cables are alike—and not all pose the same fire risk. There are eral basic cable types: Limited Combustible Cable (LCC), which has its FEP insulation jacketing, communications multipurpose plenum cable (CMP), which has an FEP lation but a PVC jacket; and CMR riser cable and CM (general purpose communications le), both of which have PE insulation and PVC jackets.

fire test replicating a real world office fire, in a very short period of time the CMR cable erates large quantities of smoke, with the fire spreading down the length of the cable. burning CMR cable produces temperatures of 1000°C—at 800°C temperature the grity of a building's steel structure starts to be compromised. Better performance is n in the CMP cable, which generates less smoke and less fire. The LCC fares even better. r a prolonged exposure to the heat source, the LCC evidences almost no smoke and no tained ignition or flame spread.

of the most telling battery of tests comparing these cable types was performed by the ding Research Establishment (BRE) facility in Bedford, England. This BRE test is more ere than the Steiner Tunnel test, specified under UL 910. Here, a real-scale test set-up constructed which matches the environment found in the air plenum of a typical building. During the test the CMP cable generated approximately 15 times the smoke of LCC. But the fact that by the time only 30 seconds have elapsed, the CMP cable has generated approximately 10 times the smoke of LCC means people in a burning building could be engulfed in smoke literally in a matter of seconds, making a safe evacuation and a chance to protect expensive equipment virtually impossible.

rtesy of: DuPont Cabling Solutions

Further data from the test fire show that flame-retardant PVC—as used in CMP cabling—has approximately the same fire loading as wood This is comparable to sticks of wood in a plenum, on fire at one end, and being bathed in a stream of air—a graphic image of the extent of fire hazard of CMP cabling in a plenum. The quick spread of such a fire is compounded by the fact that flame retardant PVC catches fire at a much lower temperature than FEP.

> ***...when compared to minimal CMP, LCC has up to 20 times lower smoke generation as well as eight times lower fuel load and lower flame spread. It also resists the effects of aging and corrosive environments, and has enhanced performance over a wide temperature range.***

Due to its FEP insulation, the LCC generates much less smoke, the lowest possible fire load, and is much less likely to burn than existing CMP plenum. In fact, when compared to minimal CMP, LCC has up to 20 times lower smoke generation as well as eight times lower fuel load and lower flame spread. It also resists the effects of aging and corrosive environments, and has enhanced performance over a wide temperature range.

To be listed as LCC, the cable must pass strict tests. The NFPA has developed a smoke index rating and a flame spread index rating. Under this system, burning Red Oak is defined as having a smoke index and a flame spread index of 100. To carry the LCC designation, the cabling must have a smoke index of 50 or lower on this test, and a flame spread index of 25 or lower. LCC cabling must also possess a maximum fire load (potential heat) of 8.1 mega Joules per kilogram (3500 BTU/lb), and it must meet the standards described under the new UL listing UL2424 for "Limited Combustible FHC 25/50 CMP" cabling.

While listed 25/50 limited combustible CMP meets or exceeds all current and proposed cable fire safety standards worldwide, it is important to note that conventional CMP cable still meets many minimum standards and fire codes, and is clearly superior to CM and CMR cable, and it represents a major safety improvement over those cable types. However, the polyethylene used in CMX, CM, and CMR cable has a fuel load comparable to gasoline.

What Works: Best Practices to Reduce Cable Fire Risk

Based on experience, two key initiatives are considered best practices with regard to communications cables in today's rapidly advancing IT environment. Taken together, these two practices represent the optimum available safeguard against reducing fire risk and promoting sustainability within a building.

Use of Cables with Advanced Fire Resistance

To prevent or minimize the effects that a fire will have on their business, companies invest in safety measures. Using LCC cables with advanced fire resistance like UL listed FHC 25/50, is a passive fire protection measure, and an important element in a fire protection strategy. Passive protection measures, which seek to compartmentalize a fire through walls, doors, ceilings and their components, are often more reliable than active methods, which encompass systems that must be activated, such as sprinklers, or fire alarms. In fact, studies have shown that sprinklers fail to operate in one of six fires and when they do operate, they only extinguish the fire 25 percent of the time. In comparison, passive measures rarely fail. Yet both active and passive measures must be employed as an effective way to protect people, facilities, and equipment.

It's important to consider that advanced fire resistant cabling is not a major expenditure. While higher performance cable costs more than cable which meets only minimum requirements, the average increase in total installation costs (labor and materials) of a system that includes LCC is minimal, less than 10 percent, when compared to traditional combustible plenum cable. Fire retardant cable helps protect a cabling system against obsolescence as data rates increase, and avoids costly recabling. In terms of life cycle costing, enhanced cable performance along with electrical properties that remain stable and reliable over time can help maximize the long-term value of a network investment. Studies have shown that in the context of total network cost, the incremental cost of premium performance cable is less than one percent.

Removal of Abandoned Cable

A main cause to the rising amount of cable in a building is the continual upgrading of existing equipment. As equipment is upgraded, existing cable often becomes out of date. Removing this cable is considered an unnecessary expense, and it is often left where it is, although it is no longer used. In place, though unused, cable is so-called abandoned cable. Most at risk for an abandoned cable problem are older buildings and those with a high turnover or those that have undergone renovations within the past five years. In addition, buildings with one long-time large and/or multi-floor tenants or those serviced by multiple vendors and contractors may also have an abandoned cable problem.

Abandoned cable is problematic because it constitutes a hidden fire hazard, contributing unnecessary fuel and smoke load, creating structural problems, interfering with air flow and leaving no room for new cable. Insurance companies recommend its removal. Recognizing the serious potential hazard, the National Electrical Code (NEC) requires that abandoned cable be removed or tagged for future use. The NEC is the most widely recognized and adopted model from which most states and local jurisdictions develop their codes. Jurisdictions that have adopted the 2002 or 2005 NEC require the removal of abandoned cable. While most jurisdictions follow the NEC and require the removal of abandoned cable, specific requirements for the jurisdiction in which the building is located must be followed. Failure to comply with codes requiring the removal of abandoned cable can result in fines and the withholding of certificates of occupancy. Failure to comply may also result in liability in the event of a building fire. Left unmanaged, abandoned cables can also create problems in obtaining building permits and in negotiations with network users and/or tenants.

Proper management of abandoned cable will facilitate code compliance and building safety.

While the NEC calls for removal of abandoned cable, it does not address the issue of when to remove abandoned cable. Most end-users initiate removal projects when new cabling systems are added, or when a major renovation is being done. However, timing is up to local jurisdiction. Another issue not addressed by the NEC is how to dispose of abandoned cable once removed. Local code and statutory requirements may come into play here. Some states do not allow disposal of these cables in landfills. While the copper in cables is often recovered and recycled, the major problem is adequately disposing of the large amount of plastic material used for insulation and jacketing. In the past, this problem has not been adequately addressed through recycling. However, advanced cable recycling technology available in the marketplace converts end-of-life abandoned cables to reusable copper and separated plastic streams.

Proper management of abandoned cable will facilitate code compliance and building safety. First, an assessment of existing conditions and plans and budgets for abatement projects should be developed. Such an assessment can fulfill several objectives. Not only will it help building owners, property and network managers identify and evaluate the magnitude and nature of abandoned cable in their structure, an assessment is also a critical cost-effectiv tool for project planning as well as developing a budget and specifications for the remova project by fully understanding conditions up front. In addition, for installed cable in-use, a assessment can identify critical deficiencies that can affect the performance of th communications infrastructure. Subsequently, an experienced contractor must be identifie to handle safe removal. A plan for proper disposal of the entire cable must be prepared an implemented, taking into account that plastics can be recycled in addition to coppe Completely recycling abandoned cable—widely recognized as the new Best Practice—ma contribute to LEED Certification under the following categories:

- New Commercial Construction & Major Renovation Projects
- (LEED-NC)
- Existing Building Operations (LEED-EB)
- Commercial Interiors Projects (LEED-CI)
- Core & Shell Projects (LEED-CS)
- Homes (LEED-H)
- Neighborhood Development (LEED-ND)

Once the old combustible abandoned cable is removed, it is a wise management practice t minimize the future buildup of fuel load by installing cable with advanced fire safet performance.

Sustainability Issues

Product manufacturers and services providers are vital to advancing the U.S. Green Buildin Council (USGBC) mission of market transformation. Although USGBC does not certif promote or endorse products and services of individual companies, products and service do play a role and can help projects with credit achievement. While there is work underwa with the EPA and the USGBC to develop a category for recognizing the environment improvements in electronics and recycling programs, cable is not officially considered toda for Leadership in Energy and Environmental Design (LEED) credits. LEED is a voluntar consensus-based program of developing high performance sustainable buildings. LEE emphasizes site development, water savings, energy efficiency, materials selection an indoor environmental quality. A framework for assessing building performance, LEED i based on a system of prerequisites and credits. LEED projects earn points during th certification process and then are awarded one of four certification levels: certified, silve gold, or platinum.

Yet the choice of cable can enhance LEED submittals if reviewed under the followin sections:

MR Credit 2.1—Construction Waste Management Divert 50 percent from landfill. In typic CMP cables, the challenge associated with PVC recycling makes this target difficult reach. Many LCC is fully recyclable.

MR Credit 4.1—5 percent recycled content (post-consumer and 1/2 post-industrial). LC may exceed this post-industrial recycled content in the future; some advanced LCC m currently exceed the post-industrial recycled content.

MR Credit 5.1—Regional materials, 20 percent manufactured regionally, within 500 miles the building site.

As LCC is made in the U.S., companies can support local businesses, while providing a hi quality product and best cable technology available. Recycling removed and was communications cable can also contribute toward LEED credits. ■

CLICK FOR ADDITIONAL SUPPLEMENTAL READING
The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0612dupontcom-1.asp***

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

RNING OBJECTIVES

r reading this article, you should be able to:

nderstand how communications cable impacts fire safety

ompare the fire safety performance of cabling products and recommend r specify to the building users' best interest

omprehend code requirements on the removal of abandoned etwork cables

dentify ways in which network cabling can contribute to sustainability

TRUCTIONS

r to the learning objectives above. Complete the questions below. to the self-report form on page 206. Follow the reporting instructions, wer the test questions, and submit the form. Or use Continuing Education self-report form on *Record's* web site—*record.construction.com*—to receive one AIA/CES Learning Unit uding one hour of health safety welfare credit.

ESTIONS

The communications cable most often used in commercial buildings is:
- **a.** Riser cable
- **b.** Plenum cable
- **c.** Backbone cable
- **d.** Network cable

Cable insulation and jacketing material are a significant fuel source.
- **a.** True
- **b.** False

Which material is used in cables which must meet the highest performance criteria for flame spread, fuel load, and smoke generation:
- **a.** PE
- **b.** PVC
- **c.** CMR
- **d.** FEP

This type of cable meets or exceeds all current and proposed cable fire safety standards worldwide:
- **a.** CMP
- **b.** CM
- **c.** 25/50 limited combustible CMP
- **d.** CMR

5. Compared to conventional cable, the average increase in total installation costs (labor and materials) of a system that includes limited combustible cable (LCC) is:
- **a.** less than 10 percent
- **b.** more than 50 percent
- **c.** equal
- **d.** less than 50 percent

6. Abandoned cable must:
- **a.** be tagged
- **b.** be removed
- **c.** meet electrical code requirement for newly installed cable
- **d.** be tagged for future use or removed

7. Recycling removed and waste communications cable can contribute toward Leadership in Energy and Environmental Design (LEED) credits.
- **a.** True
- **b.** False

8. The code responsible for plenum spaces in buildings is:
- **a.** NFPA 90A
- **b.** NFPA 70
- **c.** Local building code
- **d.** NFPA 13

9. Many of the standards regarding the flammability of communications cables were originally developed:
- **a.** In the year 2000
- **b.** In the 1950s
- **c.** In the past two years
- **d.** Over two decades ago

10. Compared to 20 years ago, today's fire risk from computer cables is not as great.
- **a.** True
- **b.** False

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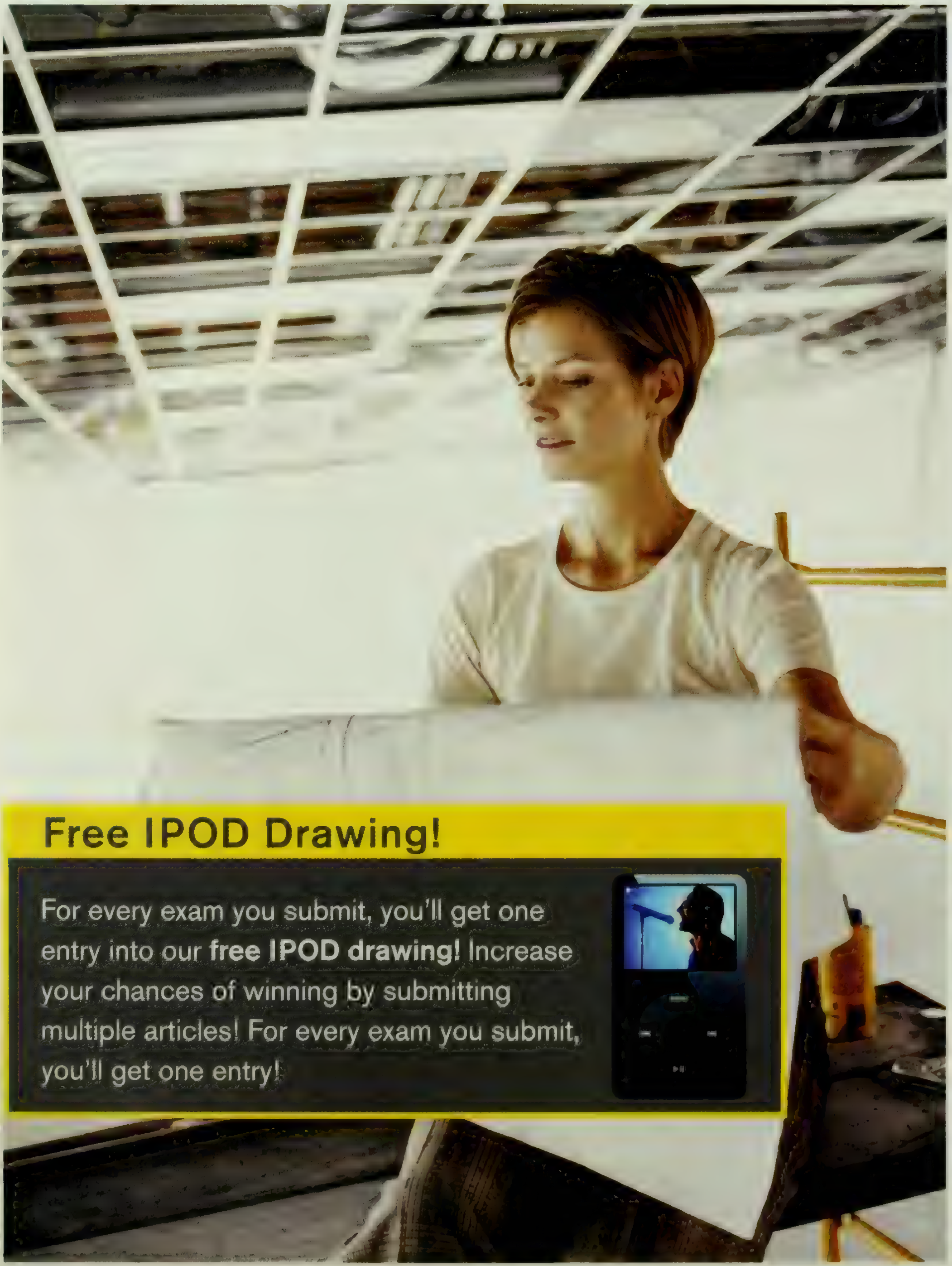

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low and Why Laminated Glass Solutions Meet xpanding Hurricane Code Requirements

ith hurricane-prone states adopting new building codes laminated glass with s many benefits takes on an increasingly critical role.

lorida Hospital Waterman is a 204-bed, state-of-the-art acute care hospital serving the Lake County, FL community. Impact resistant windows provide atients with a view to the outside, while protecting them from severe weather.

vided by DuPont Glass Laminating Solutions

Karin Tetlow

orn in the1930s, when a consortium of companies was asked to develop a clear, tough, adhesive material that could be manufactured efficiently into automobile windshields, laminated glass has become a necessity in the arsenal of building products. Not only s it provide the means for creating soaring winter gardens and light-filled concert halls, it also offers a solution to many of today's complex building demands. But it was not il relatively recently that authorities appreciated the fact that laminated glass plays a ical role as safeguard against natural hazards such as hurricanes.

1992, after Hurricane Andrew ripped through South Florida, Miami-Dade County was the t to act on the need for building code requirements that address impact resistant glazing ducts. Since then, a number of states along the Atlantic and Gulf Coasts have followed suit with the result that there are now hundreds of products on the market, and even more expected. Since laminated glass is a critical component of glazing systems designed to withstand hurricane-force wind and rain, an understanding and familiarity regarding its testing and wide-ranging benefits, is fast becoming essential.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **How and Why Laminated Glass Solutions Meet Expanding Hurricane Code Requirements.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 193, then follow the reporting instructions on page 207 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Be familiar with the expansion of building code requirements for impact protection on a state-by-state basis.*
- *Have knowledge of the test requirements for impact resistant glazing systems.*
- *Be able to identify the benefits of hurricane impact resistant laminated glass.*

A Wake-Up Call

The second most costly catastrophe in the U.S.— Hurricane Katrina is the first—Hurricane Andrew claimed 65 lives, destroyed or severely damaged 600,000 homes and businesses and caused more than $25 billion in property damage. Post-storm investigations by the Dade County Building Code Evaluation Task Force determined that the most significant hurricane damage was from the loss of integrity of the building envelope when the exterior of a structure was breached. And that the leading cause of the severe property destruction was window and door penetration caused by debris blown by the 145 mph winds. Subsequent reviews of damage documentation, insurance records, and computer simulations of building failures confirmed the decisive role of windborne debris in causing damage, reports Joseph E. Minor, P.E., F.ASCE in the *Journal of Architectural Engineering*, Vol. 11, No. 1, March 1, 2005. He also points out that the immediate result of failures of windows and doors was an increase in internal pressure which, in combination with overall roof uplift pressures, initiated a chain of events that included removal of roof sheathing, wind and rain entering the building and the beginning of progressive failure of the building frame.

As a result of the findings, Miami-Dade County and industry representatives worked together to develop requirements that addressed impact protection of building openings that directly applied to windows, doors, skylights, storefront and curtain wall systems. The South Florida Building Code with its hurricane mitigation provisions was implemented in September of 1994. In 2002 the improved structural portions of the South Florida Building Code were absorbed into the Florida Building Code as the High Velocity Hurricane Zone provisions, which are applicable within Miami-Dade and Broward Counties.

Monolithic Glass Breakage Velocities from 2 gm Roof Gravel

		Mean minimum break velocity of 1/4 in glass from impact of 2 gm roof gravel from Minor et al. 1978	
Wind speed for significant amounts of 2 gm roof gravel to leave roofs without parapets from Kind and Wardlaw 1976	Speed of 2 gm roof gravel after accelerating over 100 ft in 100 mi / h wind from Minor et al. 1978	Annealed glass	Heat-strengthened glass
100 mi / h	70 ft / s	23 ft / s	36 ft / s

Note: 1 gm=0.0044 lb; 1 ft =0.305 m; 1 mi / h=1.6 km/ h; 1 ft / s =0.305 m/ s

Source: Lessons Learned from Failures of the Building Envelope in Windstorms, Joseph E. Minor, P.E , F.ASCE, Research Professor, Univ. of Missouri-Rolla, *Journal of Architectural Engineering*, Vol. 11, No. 1, March 1, 2005

Even very small amounts of gravel flying at sufficient speed will break the three basic types of monolithic window glass Laminated glass, which tends to stay in the window opening when broken, is required to meet hurricane impact building codes.

Building code requirements apply to glazing systems, which comprise frame, attachments and the glazing infill. Window and door, skylight and curtain wall manufacturers, therefore, apply an integrated approach to designing their systems in order to pass missile impact and cycling tests, as well as required air, water and structural tests.

Laminated glass is a critical component of any impact resistant glazing system. It is manufactured by sandwiching "interlayers" (generally tough polymer sheet materials) between two pieces of glass and forming them into a composite by controlled processes combining heat and high pressure. The processing typically is done in large autoclaves capable of making finished, laminated glass suitable for buildings.

Its major benefit is that it remains intact even if broken, providing a weather barrier that reduces the likelihood of total collapse due to internal pressurization of the structure or widespread water damage. When adhesive plastic interlayers such as polyvinyl butyral (PVB) are laminated between glass, the plastic absorbs the energy of the impact, thus resisting penetration. This helps both hold the glazing system together even if the glass breaks and prevent injuries related to flying glass or exposed shards. When windows and doors are impact resistant, there is no need to board up window openings when a hurricane advisory is issued. Nor is there a need for the activation or mounting of shutters.

Depending on the location, size of the panels, and design pressures, the interlayer used in the laminate may be of different thicknesses or types. For example, a .060-in PVB interlayer is a typical thickness and type of interlayer for small missile glazed areas. Other stiffer, more structural, interlayers, in thicknesses of .090 and .100-in, provide better resistance to tearing when subjected to large missile impacts at higher design pressures. The strength and other properties of laminated glass can be tailored to meet specific needs.

Test Requirements and Standards

The Miami-Dade County test requirements currently define two distinct impact areas on a structure. Large missile impact resistance for glazing systems is required for the first 10 meters or 30 feet above the finished grade. Above the first 10 meters, small missile resistance is required for glazed openings to the top of the structure. The large missile impact test requires two impacts per specimen using a 9-pound 2-foot x 4-foot wood timber traveling at 50 feet per second. The small missile test requires two impacts to the glazing system, each with ten 2-gram steel balls traveling at 130 feet per second.

Once impacted, the test specimens are subjected to 9,000 pressure cycles, 4,500 positive pressure cycles and 4,500 negative pressure cycles. Failure is defined as a tear greater than 1/16-inch x 5-inches.

In 2002, the ASTM E1886 Test Method for Exterior Windows, Curtain Walls, Doors, and Impact Protective Systems Impacted by Missile(s) and Exposed to Cyclic Pressure Differentials was finalized. Similar to the Dade County protocol, the ASTM standard has both the large and small missile requirements. There are, however, some differences. In most areas, only one impact location is required per specimen. Two impact locations for each specimen are required in wind zones greater than 140 mph and within 1 mile of the coast. Failure is defined as an opening through which a 3-inch sphere can pass. No impact is required on the mullion outside of the 140 mph wind zone. Small missile impact resistance is required from 30 to 60 feet in height above grade.

In 2003, the ASTM E1996 Standard Specification for Performance of Exterior Windows, Curtain Walls, Doors, and Storm Shutters Impacted by Windborne Debris in Hurricanes was finalized. The specification created protection zones and additional missile types for users.

Specifiers seeking specific test requirements in the ASTM standards, must first identify the applicable wind rating for the site. This information is found in the American Society of Civil Engineering standard ASCE 7-98. Once the wind rating has been identified, the ASTM E19 standard specifies the basic or enhanced protection requirements. In addition, the stand identifies the missile type and speed required for testing.

The International Building Code (IBC) defines a windborne debris region as one wit hurricane-prone regions within one mile of the coastal mean high water line where the ba wind speed is 110 mph or greater; or where the basic wind speed is 120 mph. The IBC sta that glazed openings located within 30 feet of grade shall meet the requirements of large missile test of ASTM E1996 and glazed openings located more than 30 feet ab grade shall meet the provision of the small missile test of ASTM E1996.

Protection Zones – Large Missle Requirement

Level of protection	Wind Rating (mph)	Basic Protection	Enhanced Protection
Zone 1	110-119	C	D
Zone 2	120-129 (> 1 mile from coast)	C	D
Zone 3	120 to 129 (< mile) 130 to 139	D	E
Zone 4	> 140	D	E

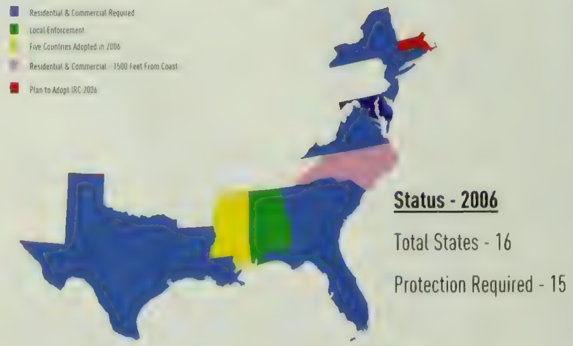
Source: ASTM E 1996-06

Missile Type and Speed for Basic and Enhanced Protection

Missile Level	Missile Type	Missile Speed
A	2 gm steel ball	130 ft/sec
B	2 lb. 2 x 4	50 ft/sec
C	4.5 lb. 2 x 4	40 ft/sec
D	9 lb. 2 x 4	50 ft/sec
E	9 lb. 2 x 4	80 ft/sec

Source: ASTM E 1996-06

Hurricane Building Codes
Adoption of Windborne Debris Protection


Residential & Commercial Required
Local Enforcement
Five Countries Adopted in 2006
Residential & Commercial - 1500 Feet From Coast
Plan to Adopt IRC 2006
Status - 2006
Total States - 16
Protection Required - 15

Thomas J. Kopec - DuPont North American
Architectural Manager
July 2006

Courtesy of: DuPont Glass Laminating Solutions

he Broward Center for the Performing Arts in Fort Lauderdale, FL was built before impact resistance requirements were adopted in the building codes. The 204,000 square foot facility opened in 1991 included 17,100 square feet of tall windows. After Hurricane Andrew, a decision was made to retrofit the windows with impact resistant laminated glass.

t protocols for missile impact and pressure cycling are specified in the Florida Building e, which includes the high velocity wind zone that applies to Miami-Dade and Broward nties. According to the 2004 Florida Building Code, all Florida counties within the -150 mph wind zones have mandatory impact standards except for the northwest Florida handle that specifies impact protection within one mile from the coast.

rricane Wilma Aftermath

it was not until Hurricane Wilma struck South Florida on October 24, 2005, that roved structural building envelope provisions of the building code were put to the test ctual conditions. After causing widespread property damage in Cancun, Mexico, the ricane made landfall in Southwest Florida near Naples as a Category 3 storm with tained winds of 103 mph and a very large eye that was 55-65 miles across. The storm ed Florida in northern Palm Beach County only four hours later with the eye still intact sustained winds of 104 mph. Due to the large size of the storm, heavily populated Dade, ward and Palm Beach counties all felt the full effect of the winds.

ough the storm was reported to be only a Category 2 storm as it passed through South ida, there was well-publicized glass breakage in high-rise buildings in Miami, Fort derdale and West Palm Beach and in high-rise condominiums in North Miami Beach. eral buildings on Brickell Avenue in Miami had in excess of 1,000 lites of broken olithic heat-treated glass. Much of the glass breakage was attributed to windborne ris. Storm investigations by various agencies confirmed that all of the high rise dings that suffered glass damage were built under codes with lesser hurricane ection standards for high rise buildings than those currently in effect.

recent post-Hurricane Wilma study, buildings glazed with impact resistant laminated ss were surveyed to determine the extent of glass breakage and resulting damage to the perty. The building types surveyed included condominiums, office buildings, government dings, hospitals, retail buildings and hotels. Building sizes ranged from single story to ti-story high rises and locations included oceanfront, downtown urban and suburban. ing assembly types in the surveyed buildings included sliding glass doors, swing doors, rable windows, fixed glass and curtain wall systems.

Findings confirmed the need for adequate hurricane protection standards. Projects that reported broken or damaged laminated glass from windborne debris only experienced fractures of the glass layers. There were no reports of laminated glass failures resulting in breaches of the building envelope. The laminated glass performed as was intended and consistent with the pass-fail criteria of the Florida Building Code. "The requirement that all structures must have windborne debris protection represents the greatest success story regarding damage mitigation," concluded Miami-Dade County's 2006 *Post Hurricane Wilma Progress Assessment.*

Additional Benefits of Hurricane Impact Laminated Glass

The benefits of high impact laminated glass reach far beyond shard retention and battling flying debris. Those particularly applicable to hurricane zones relate to safety, noise reduction, intrusion resistance, greater bomb blast protection—and complying with the turtle code.

Safety from Accidental Injuries

Aside from hurricane impact requirements, glass installed in doors and large glass panels is often required to meet safety-glazing requirements designed to minimize cutting and piercing injuries resulting from accidental glass impact. Existing building code requirements are based on the federal safety-glazing standard, CPSC 16 CFR 1201, promulgated in 1977 by the Consumer Product Safety Commission. Two levels, Category I and Category II, define acceptable performance.

Courtesy of: DuPont Glass Laminating Solutions

Sliding doors and windows of the Crawford residence were refitted with laminated glass to provide hurricane impact protection and reduce noise from the outside.

For Category I compliance, the glazing must withstand one 150 foot-pound impact produced by impacting the glazing material with a 100-pound shot bag from a vertical height of 18 inches. For Category II compliance, the glazing must withstand one 400 foot-pound impact produced by impacting the glazing material with a 100-pound shot bag from a vertical height of four feet. Pass-fail criteria for impacted laminated glass samples require that no openings are present which will allow the passage of a 3-inch diameter steel sphere.

Given the more rigorous testing standards required for hurricane impact resistance, hurricane glass will likely comply with building code requirements for safety.

Noise Control

Laminated glass used for hurricane impact resistance has proven to be an excellent barrier to noise, having a higher sound reduction index than monolithic glass of equal thickness between the frequencies of 125Hz and 3,000Hz. Compared with monolithic glass of the same thickness, laminated safety glass made with an engineered acoustical interlayer can reduce mid-frequency noise sensation by about one half. (Noises most objectionable to humans such as jet engines, dogs barking and electrical motors fall in the mid-frequency 1,000 to 3,000 Hz range.) Sound dampening is due to the "viscoelastic" properties of the interlayer material and varies depending on glass and interlayer thickness and softness.

Ray Crawford's waterfront home in South Florida incorporates more than 100 sq m of sliding doors and windows, affording the family a spectacular view of the water. With the view, however, came excessive noises from speedboats racing along the waterways. To solve this problem, Crawford decided to refit his home with laminated glass. He noted, "I knew it would allow us to continue enjoying clear, distortion-free views while solving our immediate noise problem."

Intrusion Resistance

Laminated glass ensures a safer building because glass interlayers retain glass fragments after breakage by intruders. This past June, employees of the Day Surgery Center in Winter Haven, Florida, arrived at work and noticed a broken window near the back of the facility. The exact motive for the break-in was unclear but, as employees surveyed the damage, they were relieved to find that nothing was missing or damaged. They realized, in fact, that the burglar never even entered the facility.

According to Dr. Robert Lerner, President of Physicians of Winter Haven, LLC, "When we were selecting windows for the surgical center, we wanted to provide hurricane protection, but the recent break-in attempt demonstrates the ability of laminated glass to resist impact as well." He noted that the burglar tried to remove the glass shards to gain entry, but his tools were no match for impact resistant glass, and he eventually fled the scene.

Blast Resistance

Laminated glass can be designed to withstand bullets and bomb blasts by using multiple or thick layers of glass and interlayer. The Wilkie D. Ferguson Jr. Courthouse in Miami is the first in the country designed to withstand both bomb blasts and hurricane-force winds. The new building, which spans two city blocks, is the largest federal courthouse in the United States and meets Miami's stringent hurricane codes as well as U.S. government security standards for blast mitigation. The courthouse is part of the GSA's Design Excellence Program, which commissions designers and artists to improve the design and quality of federal buildings.

Turtle Code Compliance

While architects may appreciate the many design and energy-saving options presented by laminated glass and its low-E and tinting options, those specifying glazing systems in hurricane zones, should be aware of the "Turtle Code." These are requirements intended to maximize protection of sea turtles that nest along the Atlantic and Gulf Coast beaches from May 1 to October 31 of each year. Sixty days after eggs are laid, the newborn hatchlings emerge. When they should head out to sea, the hatchlings, following their inborn tendency to move in the brightest direction, often become confused and are attracted back to the bright lights of the shoreline. As a result a number of local building codes or ordinances require a visible light transmittance of .45 or less on all new construction windows within line sight of the beach. A typical solution is to specify laminated glass with a tinted gray interlayer that falls within the acceptable visible light transmittance and meets hurricane impact requirements in coastal areas adjacent to turtle nesting habitats.

Glazing Recommendations

Glazing recommendations for architectural laminated glass are well established and published by the Glass Association of North America (GANA). The minimum requirements for typical commercial impact resistant glazing applications are 1/2-in or greater glass edge bite, 3/16-in or greater face clearance, and 1/4-in or greater edge clearance. Specif manufacturers may have special requirements regarding fastening, cleaning, spacing ar contact with other materials. Because moisture near the laminated glass edge may have deleterious effect on the adhesion of the glass to the interlayer, weep holes a recommended to prevent the accumulation of moisture in the glass pocket.

Courtesy of DuPont Glass Laminating Solutions

The windows of Cornerstone II office building in Fort Lauderdale, FL, were installed using a laborsaving dry glazing system.

Glazing Systems Performance

In addition to the laminated glass infill needing to meet impact requirements, the enti glazing system must meet dynamic performance criteria in large and small missile impa and cycle tests in order to manage impact events and loads of significant magnitude suc as hurricane force winds. A common glazing solution for surviving the demanding dynam loads applied to window test specimens is to adhesively bond the laminated glas composite to the supporting structure with a high performing architectural sealant. Th design of this glazing detail is critical in order to achieve the maximum capability of th laminated glass infill. In hurricane regions with higher wind load requirements, the glas used in the laminate is required to be heat-treated.

Dry Glazed Systems

The most recent solution known as "dry glazing" uses gaskets in place of adhesives f large missile impact protection. Adopted within the past two years a dry glazed lar missile impact system requires the use of a stiff interlayer within the glass laminate order to limit deflection of the broken laminate during loading. Dry glazed large missi impact systems with laminate infill have been certified to +/- 90 psf for sizes up to 5 fe by 8 feet. Similarly sized laminated insulating glass systems achieve design pressur approximately 50% greater than systems using laminated glazing infill.

Applied to a field installed and glazed fenestration system, dry glazing can result significant cost savings in labor and materials compared with wet glazed system Moreover, replacement of broken laminated glass infill is faster, easier and simpler. S Miller, whose company used dry glazing to install windows in the Cornerstone II offi building in Fort Lauderdale, reports that in addition to savings in labor—setting the gla and running the gasket can be done at the same time thus eliminating the need for caulker's return visit—dry glazing gives a more consistent performance since glazi pockets do not need to be cleaned of dust and contaminants. »

[illegible]

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0612dupontglass-1.asp***

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

EARNING OBJECTIVES

fter reading this article, you should be able to:

Be familiar with the expansion of building code requirements for impact protection on a state-by-state basis.

Have knowledge of the test requirements for impact resistant glazing systems.

Be able to identify the benefits of hurricane impact resistant laminated glass.

NSTRUCTIONS

efer to the learning objectives above. Complete the questions below. o to the self-report form on page 207. Follow the reporting instructions, nswer the test questions and submit the form. Or use the Continuing ducation self-report form on *Record's* website—*rchrecord.construction.com*—to receive one AIA/CES Learning Unit ncluding one hour of health safety welfare credit.

UESTIONS

Following Hurricane Andrew, what was determined to be the leading cause of severe property damage?
- **a.** Window and door penetration by windborne debris
- **b.** Water infiltration from storm surge
- **c.** Inadequately constructed roofing systems
- **d.** High barometric pressure

The Miami-Dade County fail criteria after impact is no tear in the glazing greater than:
- **a.** 1/2-in x 3-in
- **b.** 1/16-in x 5-in
- **c.** 3/4-in x 4-in
- **d.** 1/16-in x 4-in

The missile type and missile speed required for basic protection requirement in Zone 3 is:
- **a.** 4.5 lb 2 x 4 traveling at 40 feet per second
- **b.** 9 lb 2 x 4 traveling at 50 feet per second
- **c.** 2 gm steel ball traveling at 130 feet per second
- **d.** 9 lb 2 x 4 traveling at 80 feet per second

4. What is the major benefit of laminated glass?
- **a.** Noise reduction
- **b.** Breaks at wind speeds of 50 mph
- **c.** Protection from bomb blast
- **d.** Remains intact even if broken

5. Other benefits of laminated glass include:
- **a.** Safety
- **b.** Intrusion resistance
- **c.** Turtle code compliance
- **d.** All of the above

6. When specifying laminated glazing systems it is important to:
- **a.** Know the applicable wind rating of the project's location
- **b.** Understand ASTM protection requirements
- **c.** Include weep holes to drain water out of the glazing channel
- **d.** All of the above

7. The most recent glazing option for impact resistant glazing systems is:
- **a.** Adding a tinted interlayer
- **b.** Using adhesives to bond glass to framing structure
- **c.** A dry glazing system
- **d.** Low-e coating

8. The Texas Department of Insurance provides insurance to residential structures as long as they:
- **a.** Have a building permit on file
- **b.** Are fitted with laminated glass
- **c.** Meet program construction standards
- **d.** The glass meets energy saving requirements

9. The State Building Code of Alabama applies to:
- **a.** State buildings, schools, hotels, and movie theaters
- **b.** All new construction
- **c.** New construction in coastal areas only
- **d.** a. and c. above

10. A major focus in Louisiana is:
- **a.** Updating the statewide code that was in existence before 2005
- **b.** Establishing a statewide code for all counties in Louisiana
- **c.** Education of inspectors and the construction industry in parishes along the coast
- **d.** Publishing wind maps for the entire state

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EARN ONE HSW LEARNING UNIT

oisture Management in Wall Assemblies: ir, Water, and Vapor Barriers

lecting the appropriate protective barrier sed on climate, codes, and design criteria

vided by DuPont Tyvek

egardless of project location or building type, the goal of a successful building design is to keep water out and provide thermal control within the interior spaces. Understanding the basics of moisture control and the role of air, water, and vapor riers in design of wall assembly systems is important in order to avert potential blems that can arise from air and water infiltration.

building envelope, or building enclosure, separates indoor and outdoor environments. A ding enclosure controls heat flow, airflow, water vapor flow, rain, groundwater, light and ar radiation, noise and vibrations, contaminants, environmental hazards, odors, insects, fire.

en moisture infiltrates the building envelope, several undesirable conditions can ur, including mold and mildew, structural steel corrosion, and rotting wood. These ditions can result in high energy costs, ongoing maintenance problems, npromised indoor air quality, and failure of one or more architectural and ineering building systems. If they are not adequately addressed, the problems sed by moisture infiltration can potentially increase risk and liability concerns for hitects, design professionals, building owners, and building occupants.

isture is the general term used for water in its different physical states, and ludes solid (ice), liquid (water), and gas (water vapor). For all practical poses, moisture moves through the building enclosure as liquid water and as ter vapor. Moisture problems are generally the result of liquid water umulation, which could be from liquid water infiltration or condensation of ess water vapor transported by air currents or by vapor diffusion. Condensation of excess water vapor occurs on surfaces with temperatures below the dew point temperature, which is the onset of condensation.

ONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Moisture Management in Wall Assemblies: Air, Water, and Vapor Barriers.** To earn one AIA/CES Learning Unit, ncluding one hour of health safety welfare credit, answer the questions on page 199, then follow the reporting instructions on page 207 or go to he Continuing Education section on *archrecord.construction.com* and ollow the reporting instructions.

EARNING OBJECTIVES

fter reading this article, you will be able to:

- *Identify moisture management strategies for buildings*
- *Analyze design criteria for air, water, and vapor barriers*
- *Determine the impact of climate, heating, and cooling cycles on selection and location of protective barriers within wall assemblies*
- *Discuss code requirements for air, water, and vapor barriers*
- *Design wall assemblies using protective barriers*

Photograph © 2006 David S. Allee

Uncontrolled air leakage occurs from higher to lower pressure and could transport significant amounts of water vapor

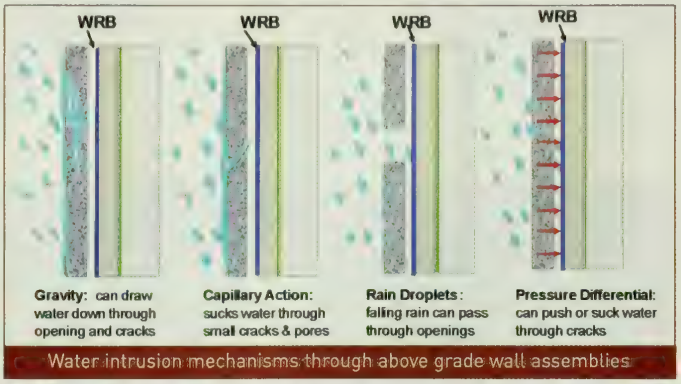
Some moisture problems cannot be avoided. Proper design can help reduce risk and make a building more tolerant to moisture. This article will describe moisture control strategies, and the use of protective barriers, including water-resistant barriers, air barriers, and vapor barriers. Requirements related to the position of each barrier in the building envelope for moisture management and condensation control will also be addressed.

Bulk Water Transport Through The Bulding Enclosure

Rain is the main water source for above grade walls. Rain can penetrate behind cladding and into the building enclosure through any openings, cracks and gaps in the assembly, and accumulate inside the wall cavity. The main mechanisms for bulk water intrusion include gravity, capillary action, kinetic energy of rain driven droplets, and pressure differential.

There are two basic approaches for rain penetration control: control the driving forces across the openings or eliminate the openings. The first approach includes proper sloping to the outside (gravity drainage to outside), capillary break (to control capillary action), shielding the openings (to control rain penetration due to kinetic energy), and pressure equalized rain screen walls (to control pressure differential across the envelope).

Rain is the main water source for above grade walls.


WRB
WRB
WRB
WRB
Gravity: can draw water down through opening and cracks
Capillary Action: sucks water through small cracks & pores
Rain Droplets: falling rain can pass through openings
Pressure Differential: can push or suck water through cracks

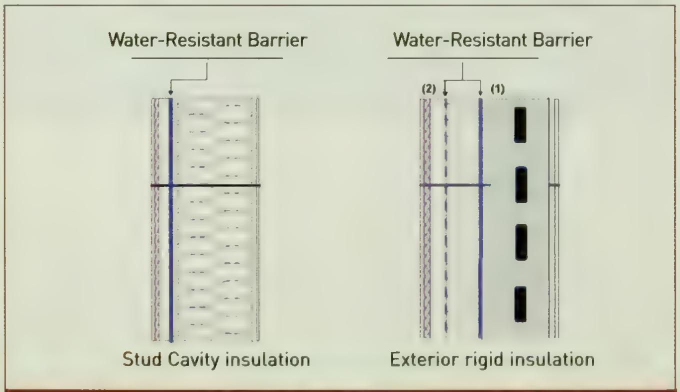
Water intrusion mechanisms through above grade wall assemblies

The second approach consists of eliminating the openings. This can be achieved through a face-seal design, which is difficult to achieve, due to sealants exposure and extensive maintenance requirements, or by using a secondary line of defense, such as a water-resistant barrier.

Water-Resistant Barriers

Water-Resistant Barriers are materials specifically designed to protect against rain penetration and prevent water leakage into the building interior. Water-resistant barriers, also referred to as the drainage plane, are typically installed behind cladding for the two main types of wall assemblies, cavity insulation and exterior insulation.

In wall assemblies with insulation inside stud cavity, the water-resistant barrier is typically installed on the exterior face of the exterior sheathing. In exterior insulation walls, the water-resistant barrier can be either sandwiched between the exterior sheathing and the exterior rigid insulation(1), or outside of the exterior rigid insulation(2). The former is the most common installation, while the latter should be used for insulation materials that are sensitive to water.



Typical position within the building envelope for water-resistant barriers

Codes and Performance Requirements

The 2006 International Building Code (IBC) requires that water-resistant barriers be used and installed to provide a continuous drainage plane and drainage pathways to the outside of the building envelope, including weep holes and through-wall flashing. The following excerpts apply:

Section 1403.2. Weather protection: The exterior wall envelope shall be designed and constructed so as to prevent the accumulation of water within the wall assembly by providing a water-resistive barrier behind the exterior veneer, as described in Section 1404.2, and a means for draining water that enters the assembly to the exterior.

Section 1404.2. Water-resistive barrier: A minimum of one layer of No. 15 asphalt fe complying with American Society for Standards and Materials (ASTM) D226 for Type 1 fe or other approved materials, shall be attached to the studs or sheathing, with flashing described in Section 1405.3, so as to provide a continuous water-resistive barrier behind t exterior wall veneer.

Section 1405.3 Flashing: Flashing shall be installed in such a manner so as to preve moisture from entering the wall or to redirect it to the exterior.

Materials Requirements

The minimum requirement for water-resistant barriers is for the material to withstand fixed hydrostatic pressure of 55 centimeters (cm) for five hours without leaking, as per t American Association of Textile Chemists and Colorists test, known as AATCC-127 or t Hydrostatic Head test. This standard is based on a No. 15 asphalt felt and is the minimu requirement. There are many water-resistant barriers that meet and exceed th requirement, such as fluid applied membranes, self-adhering membranes, and many no perforated building wraps. Perforated wraps have virtually no hydro-head and do not qual as water-resistant barriers.

Water Vapor Transport Through The Building Enclosu

Water vapor can be transported into the building enclosure in two different ways, via transported moisture and vapor diffusion.

Air transported moisture is the main source of water vapor in the building enclosure. leakage occurs through porous materials and unintentional openings in building assembli such as cracks and channels, due to the difference in total air pressure across the assemb The air flows from higher to lower pressure and it could transport significant amounts of wa vapor into the building enclosure. The amount of water vapor contained in the air depends temperature and relative humidity, with warm air being able to hold more moisture than cold air. Even though air leakage has consequences beyond moisture transport, including energy efficiency, indoor air quality (IAQ), and comfort, the air transported moisture is one of the most damaging consequences of uncontrolled airflow.

The location of air and water-resistant barriers in the wall assembly depends on continuity, durability, and maintainability.

Air Barriers

Materials that resist airflow are called air barriers. Many building materials can res airflow and therefore could function as air barrier components. However, for effect envelope airtightness, these materials must be joined together into airtight assembli which are further joined into a continuous air barrier system for an airtight buildi enclosure. Air barrier membranes are materials designed to resist air infiltration and prov a more practical way to achieve continuity. A continuous air barrier controls airflow, hen the moisture migration through air currents as well as other undesirable consequences unplanned airflow.

The location of air barriers within the building envelope is not important from the standpo of controlling air leakage, as it can be located anywhere in the wall assembly. However, t location is very important for durability and constructability. For durability, it is prefera to have the air barrier behind the exterior cladding, to protect it from direct weat exposure. For constructability, it is preferable to have the air barrier outward of structural frame, for maintaining continuity at penetrations associated with structu elements. Air barriers are ideally located towards the exterior of the building envelo because it is easier to achieve and maintain continuity.

: installation requirements for air barriers are similar to those four water-resistant riers. In wall assemblies with insulation inside stud cavity, the air barrier is typically talled on the exterior face of the exterior sheathing. In exterior insulation walls, the air rier can be either sandwiched between the exterior sheathing and the exterior rigid ulation or outside of the exterior rigid insulation. The former installation is most nmon; the latter should be used when thermal insulation performance can be affected wind-washing. According to the Building Science Corporation, wind-washing is the nomenon of air movement that occurs due to wind entering building enclosures, cally at the outside corners and roof eaves of buildings. Wind-washing can have ificant impact on thermal and moisture movement, and hence thermal and moisture formance of exterior wall assemblies.

location of both air and water-resistant barriers in the wall assembly depends on tinuity, durability, and maintainability. A single membrane could perform as an air and er barrier, if proper materials are chosen. An air barrier membrane is often water-stant; however, not all materials that meet the minimum requirement for water stance, such as asphalt impregnated felts, and papers, are effective air barriers. Other erials, such as perforated wraps, are not effective as water or air barriers

Barrier Codes and Performance Requirements

r main performance requirements for air barrier materials and systems include air tration resistance, continuity, structural integrity, and durability.

se criteria are described in Chapter 26 of the American Society of Heating, Refrigeration and Conditioning Engineers (ASHRAE) Fundamentals Handbook and summarized by the Air rier Association of America at www.airbarrier.org.

Barrier Materials

e is no national standard for acceptable air infiltration rates of air barrier materials in the U.S. National Building Code of Canada, which has required air barriers since 1995, specifies that air tration rates of air barrier materials must not exceed 0.004 cfm/sq. ft. (cubic feet per minute per are ft.) at 0.30 inch water pressure differential. This standard was adopted by Massachusetts in 1, and is proposed for adoption by Minnesota in 2007.

nples of materials that qualify as air barriers include self-adhered membranes, fluid applied nbranes, non-perforated building wraps, and closed cell polyurethane foams. Examples of building materials which do not qualify as air barriers include asphalt impregnated papers and felts, perforated housewraps, expanded polystyrene (EPS), plain and asphalt impregnated fiberboard, uncoated concrete block, batt and semi-rigid fibrous insulation, and cellulose spray-on insulation.

ere is no national andard for acceptable r infiltration rates of r barrier materials in e U.S.

Barrier Assemblies

standard specification, ASTM E1677, requires that air infiltration rates for air barrier emblies must not exceed 0.06 cfm/sq. ft. at 0.30 inch water pressure differential. These embly requirements were adopted by the Wisconsin energy code in 2003. ASTM E 2357 is w test method which was approved in 2006 and can be used as an alternative test method air barrier assemblies

ole Building Airtightness

re are no accepted criteria for what constitutes an airtight building. A study by the ional Institute of Standards and Technology (NIST) entitled, "Investigation of the Impact ommercial Building Envelope Airtightness on HVAC Energy Use," summarizes envelope ightness of 166 buildings, 144 in North America and 22 in the U.K. The air leakage rates isured by various standard methods and normalized by area of the above-ground portion he building envelope were found to vary over a broad range, from less than 0.5 to 2.7 cfm/sq. ft. at 0.30 inch water. No trends towards increased airtightness in more recent buildings were found.

The impact of building envelope airtightness on building performance is generally recognized. However, while existing codes require sealing of the building enclosure, there is no quantifiable measure for an acceptable air-tightness of the opaque building envelope, unlike windows, which require some measure of airtightness for compliance.

An excerpt from the International Code Council (ICC) requirements for building envelope sealing is as follows:

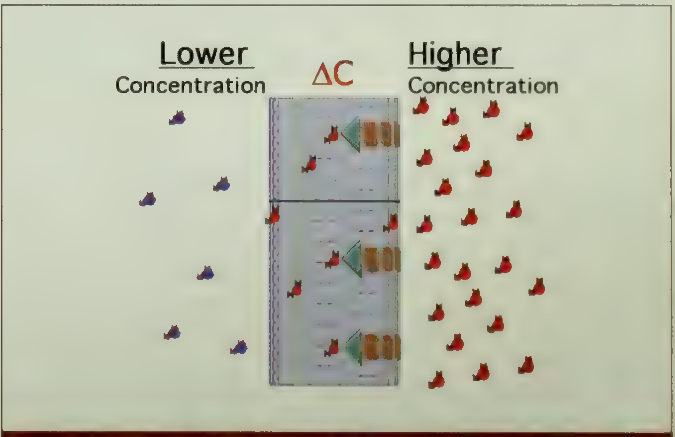
502.4.3 Sealing of the building envelope. Openings and penetrations in the building envelope shall be sealed with caulking materials or closed with gasketing systems compatible with the construction materials and location. Joints and seams shall be sealed in the same manner or taped or covered with a moisture vapor-permeable wrapping material.

It should be noted that the code specifies the use of a moisture vapor-permeable wrapping material, as opposed to a vapor non-permeable material, or vapor barrier, which could interfere with condensation control strategies.

The code description on the sealing of the building envelope provides no guidelines on the recommended airtightness, and has been compared to requiring that care be taken when installing insulation without specifying a minimum R-value. Some states and code organizations have adopted compliance criteria for airtightness of materials or assemblies airtightness, including the National Building Code of Canada (NBCC) (1995), Massachusetts (2001), Wisconsin (2003), and Minnesota (2007). In 2006, ASHRAE approved an amendment to the ASHRAE 90.1 model energy code that would require air barriers for most commercial buildings, and provide three quantifiable compliance options: air barrier materials, not to exceed 0.004 cfm/sq. ft. at 0.30 inch water; air barrier assemblies, not to exceed 0.04 cfm/sq. ft. at 0.30 inch water; and whole building, not to exceed 0.4 cfm/sq. ft. at 0.30 inch water.

Vapor diffusion is the second water vapor transport mechanism through the building enclosure, in addition to air-transported moisture. Vapor diffusion is the movement of water vapor molecules through vapor permeable materials, from regions of higher vapor pressure to lower vapor pressure, or higher vapor concentration to lower vapor concentration.

The rate of water vapor diffusion depends on vapor pressure difference, or concentration difference, across the material or assembly, as well as the water vapor permeance, which is expressed in perms. Based on water vapor permeability, materials are classified as vapor permeable or vapor non-permeable.



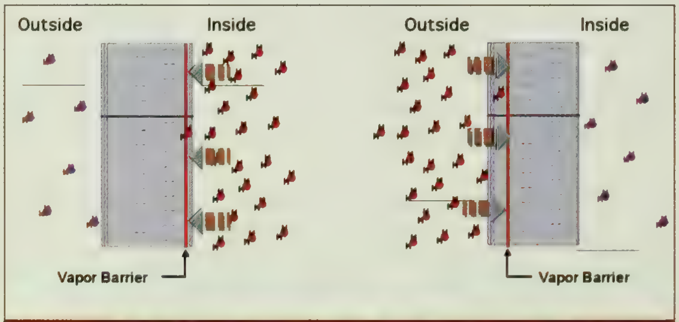
Water vapor diffusion is the transport of water vapor molecules through vapor permeable materials

Vapor permeable materials allow vapor diffusion. Vapor permeability can vary over a wide range. The higher the perm rating, the more permeable the materials. According to the 2006 International Building Code (IBC), materials must have a minimum of five perms to be considered vapor permeable.

Vapor non-permeable materials do not allow vapor diffusion. These materials are called vapor barriers or vapor retarders. According to the 2006 IBC, materials with vapor permeability of 1.0 perm or less are vapor barriers.

Vapor Barriers

Vapor diffusion is another source of moisture for the building enclosure, and a vapor barrier (or vapor retarder) is sometimes used to control diffusion and potential condensation. However, the amount of water vapor transported through vapor diffusion is significantly lower than the amount transported by air currents. It is estimated that less than 2% of all water vapor movement through the building enclosure is due to diffusion, while over 98% is due to air transported moisture. Consequently, in order to avoid conditions which could lead to interstitial condensation it is critical to firstly protect against air leakage (using air barriers), and protect against vapor diffusion when appropriate. The installation requirements for air barriers and vapor barriers are quite different, and using a single membrane to perform both functions (e.g. air and vapor barrier) could lead to condensation problems if not properly understood. For example, while the location of air barriers within the building envelope is not important from the standpoint of controlling air leakage, and the air barrier can be located anywhere in the wall assembly, the vapor barrier location is critical for condensation control, and it is climate specific.



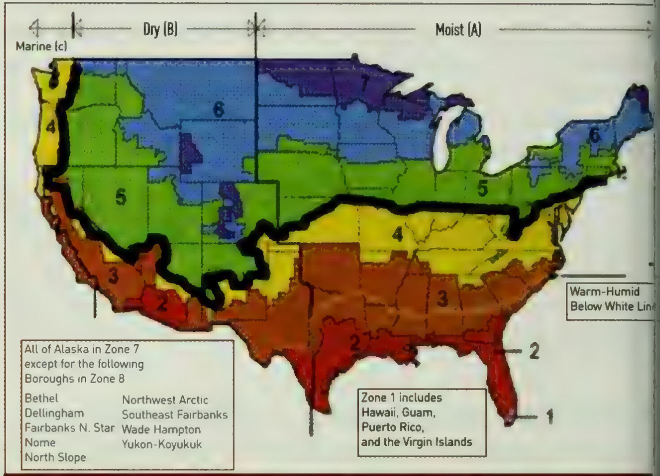
Typical vapor barrier location in the wall assembly
Heating Climates — Vapor barrier inside
Cooling Climates — Vapor barrier outside

The vapor barrier must be located on the side of the building envelope with higher vapor pressure in order to prevent diffusion into the envelope, known as diffusion wetting, and not interfere with diffusion of incidental moisture out of the envelope, or diffusion drying. As a general rule, for walls with insulation inside the stud cavity, the vapor retarder should be located toward the inside in climates dominated by heating, and toward the outside in cooling dominated climates.

While these general rules are useful guidelines, it is still appropriate to conduct a condensation analysis for specific climates, building envelope systems, and intended building use. Many U.S. climates have both heating and cooling cycles, and simple rules may not apply. In such cases, the vapor barrier may end up on the wrong side during one of the two cycles.

Vapor Barrier Codes

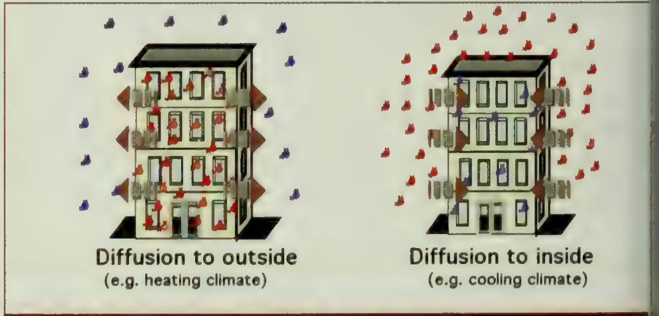
The vapor barrier codes were first introduced in Canada, with predominantly heating climates, where vapor barriers were installed on the interior (warm) side of the wall. The IBC then adopted similar requirements across all U.S. climate zones, without a proper understanding of the impact of vapor barriers in different climates. As a great
understanding of different climate needs and the consequences of the impact of vap
barriers on diffusion drying was reached, the code was changed. The 2006 IBC no longer h
prescriptive requirements for vapor barrier use in mixed climate zones 1, 2, 3, and 4, whi
cover southern and coastal zones of the U.S.



US Climate zone map
The 2006 International Building Code does not mandate vapor barrier use in climate zones 1, 2, 3, and 4 (below the black line)

Climate Issues

The reason climate is important when considering diffusion drying is because the clima
determines the exterior temperature and relative humidity. This determines the exter
vapor pressure, hence the vapor pressure difference between the exterior and the inter
conditioned space, therefore the diffusion direction. The climate determines how buildin
dry, whether towards the inside or towards the outside, depending upon the sign of t
vapor pressure difference, whether positive or negative.



Diffusion to outside
(e.g. heating climate)

Diffusion to inside
(e.g. cooling climate)

Diffusion direction: from higher to lower water vapor concentration (or higher to lower vapor pressure) and it is climate specific

Material Choices

The choice of materials is critical for providing a diffusion open pathway in order to prom
diffusion drying. As a general rule, condensation control requires that the building envel
materials increase in permeance in the direction of vapor diffusion. This means that
predominantly heating climates, where diffusion is typically from the inside to the outsi
the wall assembly must have vapor permeable materials towards the outside. In cool
climates, where diffusion is typically from the outside to the inside, the wall assembly m
have vapor permeable materials towards the inside. In mixed climates, proper moist
management requires diffusion open pathways in both directions, to the inside dur
summer and to the outside during winter. ■

CLICK FOR ADDITIONAL SUPPLEMENTAL READING
The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0612dupontbuilding-1.asp***

AIA/ARCHITECTURAL RECORD
CONTINUING EDUCATION Series

RNING OBJECTIVES

r reading this article, you should be able to:

dentify moisture management strategies for buildings

nalyze design criteria for air, water, and vapor barriers

etermine the impact of climate, heating, and cooling cycles on selection and ocation of protective barriers within wall assemblies

iscuss code requirements for air, water, and vapor barriers

esign wall assemblies using protective barriers

TRUCTIONS

er to the learning objectives above. Complete the questions below. to the self-report form on page 207. Follow the reporting instructions, wer the test questions, and submit the form. Or use Continuing Education self-report form on *Record's* web site—*hrecord.construction.com*—to receive one AIA/CES Learning Unit uding one hour of health safety welfare credit.

ESTIONS

Which statement describes characteristics of water-resistant barriers?
- a. They are generally installed on the north face of the building envelope, depending on climate zones
- b. For walls with cavity insulation, the water-resistant barrier is generally installed on the interior face of the exterior wall.
- c. For exterior insulation walls, the water-resistant barrier should sandwich both sides of the exterior rigid insulation.
- d. They are designed to protect against rain penetration

What is the main source of water vapor in the building enclosure?
- a. Porous materials
- b. Relative humidity
- c. Air transported moisture
- d. Mold

Which term describes materials that resist airflow?
- a. Ventilating membrane
- b. Air barrier
- c. Vapor barrier
- d. Wind screen

4. Wind-washing impacts moisture performance, and does not impact thermal movement or performance.
   - a. True
   - b. False

5. Which of the following is not a performance requirement for air barrier systems?
   - a. Structural integrity
   - b. Durability
   - c. Thermal resistance
   - d. Continuity

6. Which of the following materials qualify as air barriers?
   - a. Non-perforated building wraps
   - b. Expanded polystyrene
   - c. Batt and semi-rigid fibrous insulation
   - d. Cellulose spray-on insulation

7. As a general rule, where should a vapor barrier be located?
   - a. On the side of the building envelope with higher vapor pressure
   - b. Toward the inside in climates dominated by cooling
   - c. Wherever it will prevent diffusion of incidental moisture out of the envelope, or diffusion drying
   - d. On the side of the building that will encourage vapor diffusion into the envelope

8. Which direction does diffusion drying occur for buildings in mixed climates (with heating and cooling seasons)?
   - a. From the inside to the outside
   - b. From the outside to the inside
   - c. Both directions (to outside in winter, to inside in summer)
   - d. None of the above

9. If an air and water barrier is also a vapor barrier, which of the following determines the appropriate location in the building envelope?
   - a. On the face of the building with the highest relative humidity
   - b. Anywhere in the wall assembly
   - c. The vapor barrier function and requirements for condensation control
   - d. In climates dominated by heating, toward the outside

10. Which of the following states has not adopted compliance criteria for airtightness of materials or assemblies?
    - a. Minnesota
    - b. Massachusetts
    - c. Wisconsin
    - d. Washington

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DuPont™ Tyvek® Weather-Resistive Barriers are engineered to provide air and moisture management for a more durable, energy efficient building envelope by offering the best balance of properties including:

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- Optimum water vapor permeability for drying (by water vapor diffusion) to help prevent the growth of mold and mildew and costly moisture-related damage.

DuPont™ Tyvek® weather-resistive barriers contribute to LEED® credits in green building certification by helping to optimize energy conservation and improve indoor air quality. Used in commercial construction under all cladding types, the Tyvek® Weatherization System is made up of the primary membrane, DuPont™ Tyvek® CommercialWrap® or StuccoWrap®; and installation and continuity accessories including DuPont™ Tyvek® Wrap Cap Fasteners to secure the wrap and withstand pressure differentials, DuPont™ Tyvek® Tape for sealing the overlaps, and DuPont™ Flashing Systems to provide continuity at critical interfaces and penetrations like wall-window, wall-doors, etc.

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ARCHITECT: HOWARD-SNEED ARCHITECTURE AND DESIGN | PROJECT: FISH & RICHARDSON P.C. | APPLICATION: VERTICAL OPENING PROTECTIVE/SHAFT ENCLOSURE

Horizontal sliding fire-doors can be used to protect virtually any means of egress.

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EARN ONE HSW LEARNING UNIT

lorizontal Sliding-Door Systems: pening New Opportunities for Design Flexibility

nce 2000, Fire and Building Codes Allow sliding-door systems For Emergency Egress

nthony Flint
vided By Won-Door™ Products

Anthony Flint is the Boston-based author of the book "This Land: The Battle Over Sprawl and the Future of America."

any design professionals may not know it, but changes in fire and building codes since 2000 have made it possible to use horizontal sliding-door systems in a wide variety of applications, opening up new possibilities for emergency egress and the ture of internal spaces, while protecting against fire and smoke, ensuring life safety enhancing building security.

changes mark a radical departure from codes developed over the 20th century that wed horizontal, accordion-style sliding doors in only selected applications, and forced itects to provide emergency exits and separate internal spaces with standard, wood or l-framed, hinged swinging doors, a minimum of four feet wide.

y, the acceptance of horizontal, accordion-style sliding-door systems is for all ications except in certain occupancies which typically involve the storage of flammable erial, the categorization known in codes as Group H. The sliding-door systems can be d regardless of the occupancy type or occupancy "load" of the building or the space g served. This has liberated design professionals to take new approaches with openings quired fire separation such as airports, schools, hospitals and museum galleries, while maintaining fire and life safety standards.

actable horizontal sliding-door systems—allowing free-flowing openings some of the and secure closure when needed—has not only been approved by the two U.S. national dings codes, the International Building Code and the National Fire Protection ciation (NFPA) 5000 Building Code, but has been deemed ideal and in many cases erable to traditional hinged swinging doors. As a result, design professionals have many e options for this essential component of their craft: the entrance and exit, the free-ing passageway, the atrium and the juncture of spaces.

des Over Time

mportant driver of the design of front entrances in the 20th century has been energy erns, which led to the development of the revolving door, and later the sliding glass and protected vestibule, which provided a seal against the elements, while mmodating the passage of large numbers of people.

separation of internal spaces, before the development of fire codes and increased rity requirements, could be designed with few restrictions, such as the wide-open ageways separating the galleries at the Louvre Museum in Paris. Ancillary means of ss was likewise a straightforward affair: standard swinging doors at stairwells and -of-house exits, with little or no requirements for how they would actually function in mergency or be used by different groups of people, such as the disabled, patients in th-care facilities, or large crowds in entertainment or shopping venues.

All of that changed over the course of the last century, after tragedies that revealed the need for functional emergency egress and fire protection, and led to the development of strict standards in detailed fire and building codes.

The Triangle Shirtwaist Factory fire of 1911, in New York City, was an important turning point in the development of fire safety codes. Immigrant workers trying to flee the fire found the doors to the ninth-floor stairs in that Manhattan building to be locked, and the fire escape was flimsy. A total of 146 people died.

Another tragedy that assured strict standards for interior doors and emergency egress was the Cocoanut Grove fire in Boston in 1942, at a swank nightclub in what is now Bay Village, near the Theatre District in Boston. On a cold November night at about 10 p.m., with 1,000 patrons in the palm-tree lined halls, a young couple unscrewed a light bulb to soften the glow at their table. A bartender told a busboy to replace the light, who struck a match to better see what he was doing. The satin ceiling caught fire, and in moments, a fireball swept upstairs.

CONTINUING EDUCATION

Use the learning objectives below to focus your study as you read **Horizontal Sliding-Door Systems: Opening New Opportunities for Design Flexibility.** To earn one AIA/CES Learning Unit, including one hour of health safety welfare credit, answer the questions on page 205, then follow the reporting instructions on page 208 or go to the Continuing Education section on *archrecord.construction.com* and follow the reporting instructions.

LEARNING OBJECTIVES

After reading this article, you should be able to:

- *Understand the evolution of fire and building codes in the U.S., for emergency egress, fire resistance, and building security requirements.*
- *Learn the current framework for fire and building codes in the U.S., which allow the use of horizontal sliding doors in any application.*
- *Analyze the different uses of horizontal sliding-door systems.*
- *Examine the advantages of sliding door systems for the disabled under Universal Design.*
- *Understand how horizontal sliding-door systems work and what they are made of.*

The Cocoanut Grove nightclub fire in Boston in 1942, which killed 492 people, led to strict standards on emergency egress and fire protection centered on the use of hinged swinging doors.

As panic spread, the revolving door that was the primary entrance was hopelessly jammed, and others found side doors locked; 492 people died.

In the aftermath, cities across the nation revisited building codes and made sure evacuation in a fire emergency was paramount in any structure where large numbers of people gathered. One new requirement was that revolving doors could no longer be the primary means of egress, and had to have swinging doors on either side. Sliding doors and overhead doors could not be an exit. Emergency egress had to consist of hinged or pivoted doors, of a minimum width and height, that could be easily opened with minimal effort and that opened in the direction of exit travel.

The fire at the Our Lady of the Angels School in Chicago in 1958, in which 92 children and three nuns died, led to even tougher requirements for egress and fire protection in schools, and in hospital and healthcare facilities as well. The standards applied to museums, sports arenas, office buildings, and shopping and entertainment complexes—any building where large numbers of people gathered.

The standards were put in place both on the basis of performance and specifications, and spelled out in great detail in the three regional groups that promulgated model building codes: the Southern Building Code Congress International, covering southern and Gulf Coast states and producing the Standard Building Code; the Building Officials and Code Administration, covering the Northeast and Midwest and producing the National Building Code; and the International Conference of Building Officials, covering California and the West and producing the Uniform Building Code.

The other model code used by local jurisdictions was the National Fire Protection Association, which regulated key life safety elements such as sprinklers and alarms, and exits, windows, and doors.

Each of the regional groups had requirements for exit doors that differed slightly, based on the occupant "load," for example, the square footage of a building in proportion to the number of maximum allowed occupants. But the basic performance-based standard for a door that was to be used in an emergency was that it should not require any tool, key or special knowledge to open from the inside; and that it would take no more than 15 lbs. of pressure to open any latch, 30 lbs. of pressure to initiate the opening, and 15 lbs. of pressure to swing it open fully.

New rules were also set for the number of exits. Every accessible space had to have a minimum of one exit. Two exits were required in stores, hospitals, educational institutions, hotels, apartments, and office buildings where the occupancy ranged from 10 to 50, and two exits were also required for all floors with an occupancy of 10 or more. A minimum of three exits are required in buildings with an occupancy load of 501 or more, and a minimum of four are required where the occupancy load exceeds 1,001.

Similarly, the required width of exits broadened according to occupancy. The spacing of exits was based on the idea that occupants should not have to travel more than 200 to 300 feet to get to an exit in an emergency.

The Sliding Door and Codes

The standards strictly limited the use of horizontal sliding doors. These systems could not, for example, be the primary means of egress. Any horizontal sliding-door system that separated internal spaces also had to meet tough requirements for fire resistance. The distinction between a fixed wall and a door was that flammable objects could be stored next to a wall, but not in the way of a swinging door; moveable partitions fell into a kind of no-man's land between the two.

Horizontal sliding-door technology grew out of a desire to create a high acoustically rated folding partition which would produce sound transmission ratings comparable to insulated walls. In the early 1960s, early models where developed that used a two-track folding partition system that consisted of two walls of steel independently suspended from overhead tracks and a six-inch dead air space. But while built with acoustics in mind, the horizontal sliding door was also capable of resisting fire.

In the 1970s, the horizontal sliding door passed the two major fire testing methods for doo assemblies to withstand the passage of fire, holding up in intense heat rising to 1,700 degrees Fahrenheit and maintaining structural integrity. In 1986, the National Fir Protection Association committee that writes the Standard for Fire Doors and Windows firs considered the introduction of a new chapter for the installation of special-purpos horizontally sliding accordion or folding doors. A few years later, the NFPA committee tha writes the Means of Egress section considered a recommendation to permit the use o certain horizontal sliding doors as a means of egress in selected applications—to protec elevator lobbies, in buildings where the occupant loads were less than 50, and as fire an smoke barriers in healthcare facilities.

Sliding doors had been previously accepted for elevator lobbies, and the committee als determined that doors that slide horizontally did not present any more of a problem tha swinging doors that open against the direction of travel—the latter deemed acceptable fo buildings serving occupant loads of less than 50. Finally, horizontal sliding doors served a effective smoke barriers, which were required under the code for health care facilitie virtually every 75 feet, to facilitate the "defend in place" approach used with occupants wit special needs in fire emergencies. All of these proposed changes appeared in the 198 edition of the Life Safety Code, and the three regional model building codes subsequentl adopted them as well. The horizontal sliding door was thus acceptable as an alternative t traditional swinging doors in selected instances.

The Final Push

In 2000, the three regional building code entities merged into a single group that produce a single national uniform code—the International Building Code. Around the same time, th horizontal sliding door had a final breakthrough: an acceptable means of egress in a applications, regardless of occupancy loads, except for storage areas for flammabl materials. The National Fire Protection Association changed its code as well, essentially t reflect what was in the IBC.

iief characteristic that convinced the code writers was that the sliding-door systems d actually be easier to get through in an emergency than conventional swinging doors, e providing an effective barrier for fire and smoke, and serving as a key segregating ce in other security emergencies.

burden of proof is high. The industry is reactive to cataclysmic events," said Tim ch, vice president of marketing at Won-door, based in Salt Lake City, Utah. "We did a f education and showed that these systems were reliable, electronically supervised, functioned well for egress. So over about 15 years, it's been mainstreamed. There are estrictions on use. They can be used in any occupancy. This is all very new to rcement professionals and design professionals."

idea of doors not swinging for exit l is a significant change, maybe one of more significant changes in the ling code for the last 60 years, Welch The change is in recognition of new nology that makes sliding-door ems ideal as both fire and smoke ks and emergency exits, particularly he disabled. This latter issue has been imary concern for independent living and Universal Design advocates, because tional swinging doors proved to be cumbersome for people in wheelchairs.

> ***"There are no restrictions on use. They can be used in any occupancy. This is all very new to enforcement professionals and design professionals."***

ersal Design is the approach to design that allows the use of the built environment by eople, regardless of age, ability or situation. It is an attempt to integrate accessibility irements such as those under the Americans with Disabilities Act into one broad oach to make environments usable.

gency egress standards developed post-World War II in particular did not adequately ider the needs of the disabled. The problem was first recognized by Ed Roberts, a plegic appointed by then-California Governor Jerry Brown to be director of the state rtment of Rehabilitation, who started thinking about how people with disabilities were osed to escape from upper floors and buildings in general in the event of an emergency e. What happens if there's a power failure? People in wheelchairs obviously couldn't the admonition outside elevators that "in case fire, use the stairs." Safe staging areas mergency evacuation were needed.

ior doors that were heavy and swung out or in posed another problem for those in lchairs. Getting the door open and getting through was unwieldy at best and times impossible.

ng-door systems actually had an advantage in this regard. Manufacturers developed ors, integrated processors, and motor technology that controlled the opening and ng of the partitions with maximum precision for any circumstance. Today's sliding-door ems can open with very little pressure, and have a manual override feature. Backup r systems are built in. In addition, a person in a wheelchair can simply bump into rdion-style sliding-door systems and they will spring open in an emergency. The ems also automatically stop closing if there's any obstruction, but then resume closing a pause to maintain the integrity of the partition, similar to most elevator doors.

rge horizontal sliding door in a fire-rated partition raises a number of questions: is it self- ng? What measures can be taken to prevent it from being blocked? What are the implications meone trying to pass through the doorway as it is closing?" said A. Vernon Woodworth, AIA, ipal in the Sullivan Code Group at the Boston-based R.W. Sullivan Engineering.

The use of electronic sensors and controls can address these concerns, Woodworth said. "This adds a new layer of complexity to building design and maintenance," he said. But, he noted, "The issue of expectations and habit are key to behavior in the built environment, and doors are for people and their use. Side-swinging doors present obstacles for people in wheelchairs whereas sliding doors do not."

> ***"The issue of expectations and habit are key to behavior in the built environment, and doors are for people and their use."***

Opening a New Frontier: From Museums to Courthouses

In recent years, design professionals have been turning to horizontal accordion-style sliding door systems in museums, sports arenas, casinos, government facilities, entertainment and shopping venues, airports, and healthcare facilities. The use of the systems satisfies fire and building codes but allows considerable design flexibility. The accordion-style doors retract into wall recesses and hang from a ceiling track when closing, but require no track on the floor. The separation of internal spaces, the design of corridors leading to atriums and other open areas can thus be seamless and open in ways that were previously not possible.

Getty Museum, Los Angeles, California.
Architect: Richard Meier & Partners, Architec
Photo credit: Sutton Photogra

The use of horizontal sliding-door systems has been popular as invisible fire breaks at the juncture of internal spaces, such as galleries at the Getty Museum in Los Angeles.

Getty Museum, Los Angeles, California.
Architect: Richard Meier & Partners, Architects
Sutton Photography

In addition to the application at the Getty Museum in Los Angeles, horizontal sliding-door systems are used to separate galleries at the Guggenheim Museum in Bilbao, Spain.

Frank Gehry, FAIA, and his firm, Gehry Partners, LLP, used 10 fire-rated, horizontal accordion-style sliding-door systems in his acclaimed Guggenheim Museum in Bilbao, Spain, creating striking interior views among the interior exhibition spaces. Richard Meier, FAIA, and his firm, Richard Meier & Partners, Architects used 64 sliding-door systems at the J. Paul Getty Museum outside Los Angeles to accomplish a similar unobtrusive design for the collection of antiquities, Impressionist paintings, decorative art, and contemporary photography.

Tim Love, principal at the Boston-based architectural firm Utile, Inc., worked on the Getty villa, an extension of the museum that opened in January 2006, while at Machado and Silvetti, Associates, Inc., also based in Boston. Sliding-door solutions are like "invisible fire breaks," he said. When retracted, they are actually hard to notice, allowing free-flowing passage among internal spaces. But they close and serve a critical function in a fire or other emergency.

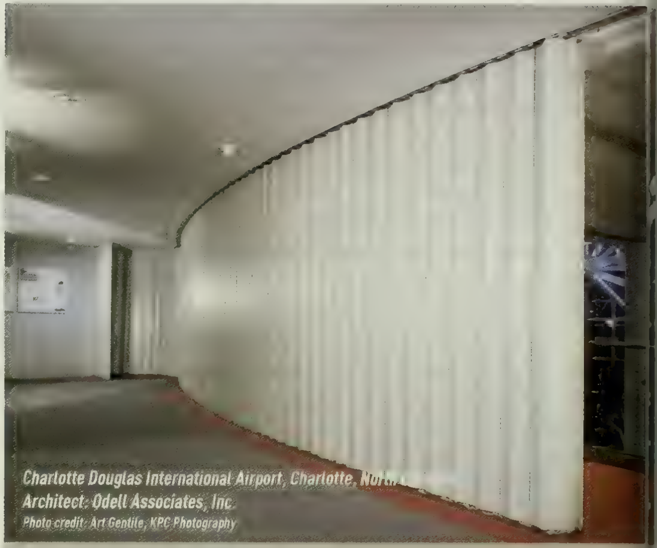
> ***Sliding-door solutions are like "invisible fire breaks," he said. When retracted, they are actually hard to notice, allowing free-flowing passage among internal spaces.***

The systems are well suited for museums that require this function and are in place at the Smithsonian and several dozen other museums, art institutes, and performing arts centers.

Airports face a similar but slightly more practical design challenge: they must accommodate the rapid movement of thousands of patrons while complying with life safety requirements and building security. Horizontal accordion-style sliding doors can emerge from recessed walls and seal off openings as large as 60 feet, as is the case at Orlando International Airport. The systems are in use at the major airports in New York, Washington, Chicago, Newark, Houston, Miami, and Los Angeles, as well as others.

Charlotte Dou ***port, Charlotte, North Carolina.***
Architect: Ode ***Inc.***
Photo credit: Art G ***otography***

Fire protection and increased security needs have prompted the use of horizontal sliding-door systems in government facilities and airports, such as Charlotte Douglas International Airport.



Charlotte Douglas International Airport, Charlotte, Nort
Architect: Odell Associates, Inc.
Photo credit: Art Gentile, KPC Photography

In the retracted position, the systems allow for the free flow of thousand of travelers, but close in an emergency and provide a security barrier.

Government facilities have seen a dramatically increased need for building security in the wake of the September 11, 2001 terrorist attacks on New York and Washington. At the Pentagon, where American Airlines Flight 77 slammed into the side of the building and killed 125 occupants, 38 horizontal accordion-style sliding doors were in place in building's vast network of corridors.

They were there in part because conventional swinging doors at the end of long corrid were cumbersome for the electric carts that were used to transport paperwork supplies. Some of these doors in the 26-foot-wide corridors had actually b chained open.

On September 11, the sliding-door systems took on new significance, activating insta at the signal of alarm. One general recalled that he saw a fireball racing down a corr and felt certain he would perish, but the horizontal sliding door drew shut, sealing off inferno and allowing him to escape.

Courthouses that require free-flowing access for judges and attorneys but need t similarly sealed off in a security emergency have also turned to the systems a design solution.

Public Venues and Places of Assembly

Sliding-door systems are also in use at hotels including Walt Disney World, the Hy Hilton, Marriott, Fairmont, Ritz-Carlton, and Intercontinental chains, around atriums an a retractable protective barrier around elevator lobbies, needed to prevent the ver migration of fire. They are commonly used in sports facilities for football, basel basketball and hockey, where large numbers of fans must pass through openings corridors that must be sealed off in an emergency while still providing emergency egre Shopping malls, with their distinctive fire safety and security requirements, use horizo sliding-door systems as long as 100 feet, which curve and snake along the line o desired protective barrier. At virtually every gaming facility in Las Vegas, the systems the place of conventional swinging doors that limit design flexibility and can be cumbers for large numbers of guests moving between spaces. At Caesar's Palace, the system as a fire-assembly separator, between the casino and the shopping center. ■

LEARN THE ADDITIONAL REQUIRED READING

The article continues online at ***http://www.archrecord.com/resources/conteduc/archives/0612wondoor-1.asp.***
To receive AIA/CES credit, you are required to read this additional text. The quiz questions below include information from this online reading.

AIA/ARCHITECTURAL RECORD **CONTINUING EDUCATION** Series

LEARNING OBJECTIVES

After reading this article, you should be able to:

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- *Analyze the different uses of horizontal sliding-door systems.*
- *Examine the advantages of sliding-door systems for the disabled under Universal Design.*
- *Understand how horizontal sliding-door systems work and what they are made of.*

INSTRUCTIONS

Refer to the learning objectives above. Complete the questions below. Go to the self report form on page 208. Follow the reporting instructions, answer the test questions, and submit the form. Or use the Continuing Education self report form on *Record's* web site—*archrecord.construction.com*—to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS

1. After the Cocoanut Grove fire in Boston in 1942, changes in building codes included all but which of the provisions below?
  a. Emergency exit doors that easily swing open in the direction of travel
  b. Swinging doors on either side of revolving doors at the primary entrance
  c. Sliding or overhead doors as means of emergency egress
  d. Minimum width and heights for hinged swinging doors

2. The occupancy "load" used to determine emergency egress standards is based on what calculation?
  a. The maximum number of people allowed in a building
  b. The square footage of a building in proportion to the maximum allowed occupants
  c. The number of exits
  d. The number of floors

3. Horizontal sliding doors were first allowed in all but which of the following applications?
  a. To protect elevator lobbies
  b. In buildings with occupant loads less than 50
  c. As the primary entrance
  d. As fire and smoke barriers in healthcare facilities

4. In 2000, the three regional building code entities merged into a single group to produce what single uniform code?
  a. The International Building Code
  b. The National Fire Protection Association Code
  c. The Standard Building Code
  d. The Uniform Building Code

5. Horizontal accordion-style sliding doors are now accepted as emergency egress:
  a. Only in healthcare facilities
  b. Only in buildings with occupancy loads of less than 50
  c. Only to protect elevator lobbies
  d. In all applications regardless of occupancy load, except in areas used for storage of flammable materials

6. Horizontal accordion-style sliding doors are commonly used in which applications?
  a. As a seamless separation of internal spaces such as museum galleries
  b. As fire protection and security barriers in airports and government facilities
  c. As a means of emergency egress in back-of-house commercial buildings
  d. All of the above

7. Under Universal Design, where the built environment is designed for people of all abilities, sliding-door systems are:
  a. Easier to use by people in wheelchairs because they can be opened and navigated with minimal effort
  b. Slightly harder to use as emergency egress compared to hinged swinging doors
  c. Only easier to use compared to swinging doors that open in the direction of travel
  d. Not permitted under the Americans with Disabilities Act

8. The horizontal sliding-doorsystem is designed to respond to:
  a. Smoke detector activation
  b. A fire alarm system
  c. A manual pull station
  d. All of the above

9. In an emergency, horizontal sliding-door systems:
  a. Close and can be re-opened only with 30 lbs of lateral pressure
  b. Close and can be re-opened with 5 lbs of pressure and then stay open
  c. Close and can be re-opened with 5lbs of lateral pressure, retract typically to 36 inches, then recycle closed.
  d. Cannot be re-opened for emergency egress.

10. The fire separation advantages of a horizontal sliding-door system also provide design flexibility for all but which of the following reasons?
  a. A floor track is never needed
  b. In the retracted position they are not highly visible
  c. They require both a ceiling and a floor track
  d. They can be designed in radial configurations

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Program title: **"The Art & Science of Good Ventilation," (12/06, page 177)** 126SPONA

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Directions: Select one answer for each question in the exam and completely circle appropriate letter. A minimum score of 80% is required to earn credit.

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1.	a	b	c	d	e	**6.**	a	b	c	d	e
2.	a	b	c	d	e	**7.**	a	b	c	d	e
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5.	a	b	c	d	e	**10.**	a	b	c	d	e

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CONTINUING EDUCATION

Program title: **"Network Cabling Specification and Installation Practices Impact Building Safety," (12/06, page 183)** 126SPONB

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Program title: **"How and Why Laminated Glass Solutions Meet Expanding Hurricane Code Requirements ," (12/06, page 189)** 126SPONC

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Program title: **"Moisture Management in Wall Assemblies: Air, Water, and Vapor Barriers," (12/06, page 195)** 126SPOND

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Program title: **"Horizontal Sliding-Door Systems: Opening New Opportunities for Design Flexibility," (12/06, page 201)** 126SPONE

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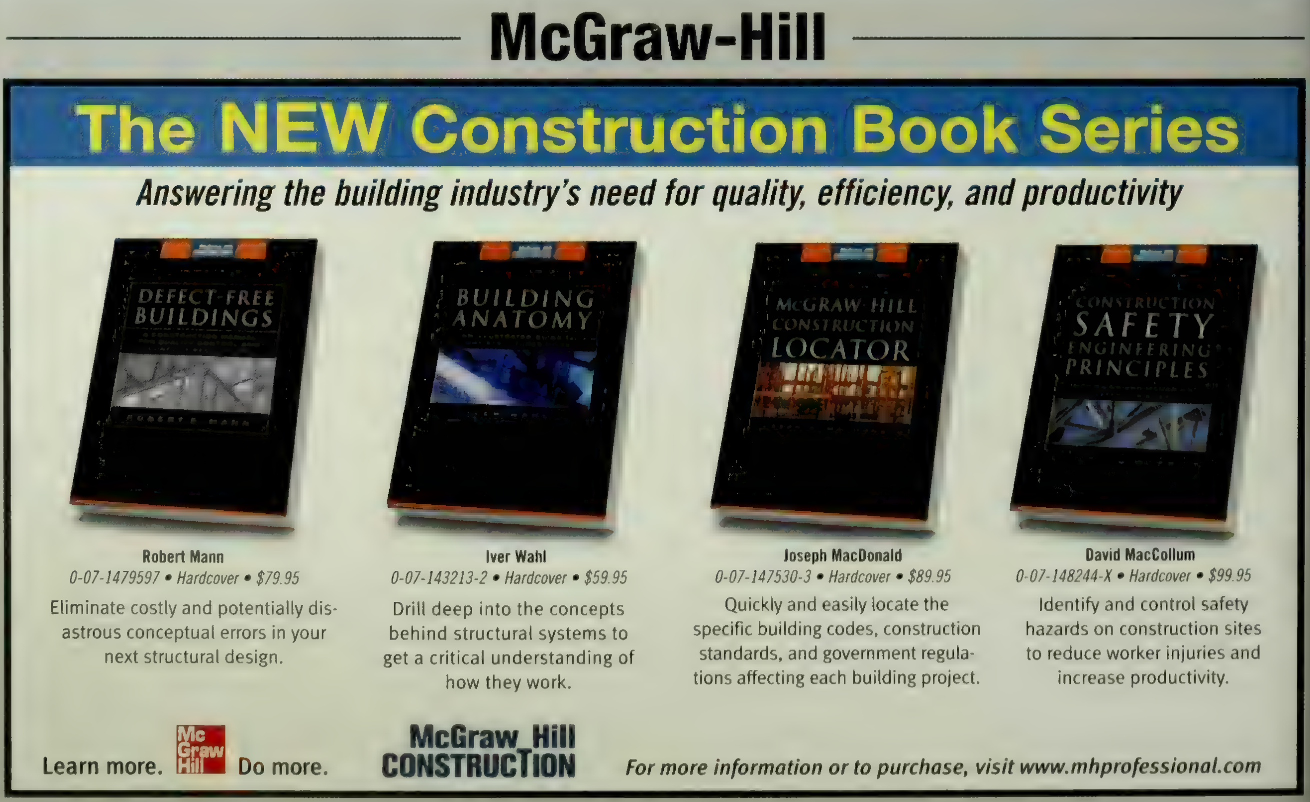
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265 **Special Construction & Pollution Control**

Product Reports 2006

ur 34th annual review of the year's most interesting and innovative ew building products available to architects, designers, and specifiers

Each September, our mission at ARCHITECTURAL RECORD *is to present a jury of highly qualified product experts with a collection of the latest and greatest building products, materials, and technologies. The main task facing the jury is to define what are the most "interesting" and "innovative" products from the hundreds of submissions we receive. These terms are highly subjective, but there are a few universal constants: The product responds to a need in the marketplace; it isn't harmful to the end user or the environment; and it displays a certain level of detailing and craftsmanship. An added bonus is when it's produced by a reliable manufacturer interested in establishing a long-term relationship with the specifier.*

2006 Jurors (Standing, left to right): **Pei-heng Tsai** founded PHT Lighting Design in New York City in 2004 and has over 10 years experience as a project designer and manager for large-scale works in the U.S. and abroad. She is currently teaching lighting design at the Interior Design School of the Fashion Institute of Technology, in New York City. **Brian M. Slocum, AIA,** is a project architect at Polshek Partnership Architects in New York City. His experience includes cultural, educational, institutional, and residential project work. **Matthew C. Petrie, AIA,** has been an associate principal at ADD Inc. in Cambridge, Massachusetts, since 2004. He previously worked for Richard Meier and Partners in New York City and Paris and for Leers Weinzapfel Associates Architects in Boston. **Eileen F. Ragsdale** is a LEED-accredited professional and is the resource librarian for TPG Architecture in New York City. Ragsdale is also president of the Resource Directors Association's New York Chapter. After 23 years of experience in lighting design, **Suzan Tillotson** founded Tillotson Design Associates in 2004. She is a corporate member of the IALD and has been an IES member for 24 years. Her firm's portfolio includes interior and exterior lighting for corporate, education, hospitality, and retail projects. **Herbert Martin Lynn, AIA,** is an associate partner and the director of research and specifications at SOM in New York City. He has over 35 years of experience in architecture, primarily in specification writing. Recently, he wrote specs for the Time Warner Center and Random House projects in New York City. (Seated, left to right): A LEED accredited professional, **Brian Stacy** leads the Arup Lighting office in New York City and has designed lighting and related systems for exterior and interior environments in the cultural, entertainment, and corporate sectors. **Andrew Dent** is vice president for library and materials research at Material ConneXion in New York City. Dent received his Ph.D. in materials science from the University of Cambridge in England. His new book, *Material ConneXion II* (Thames and Hudson), is coming out in 2007.

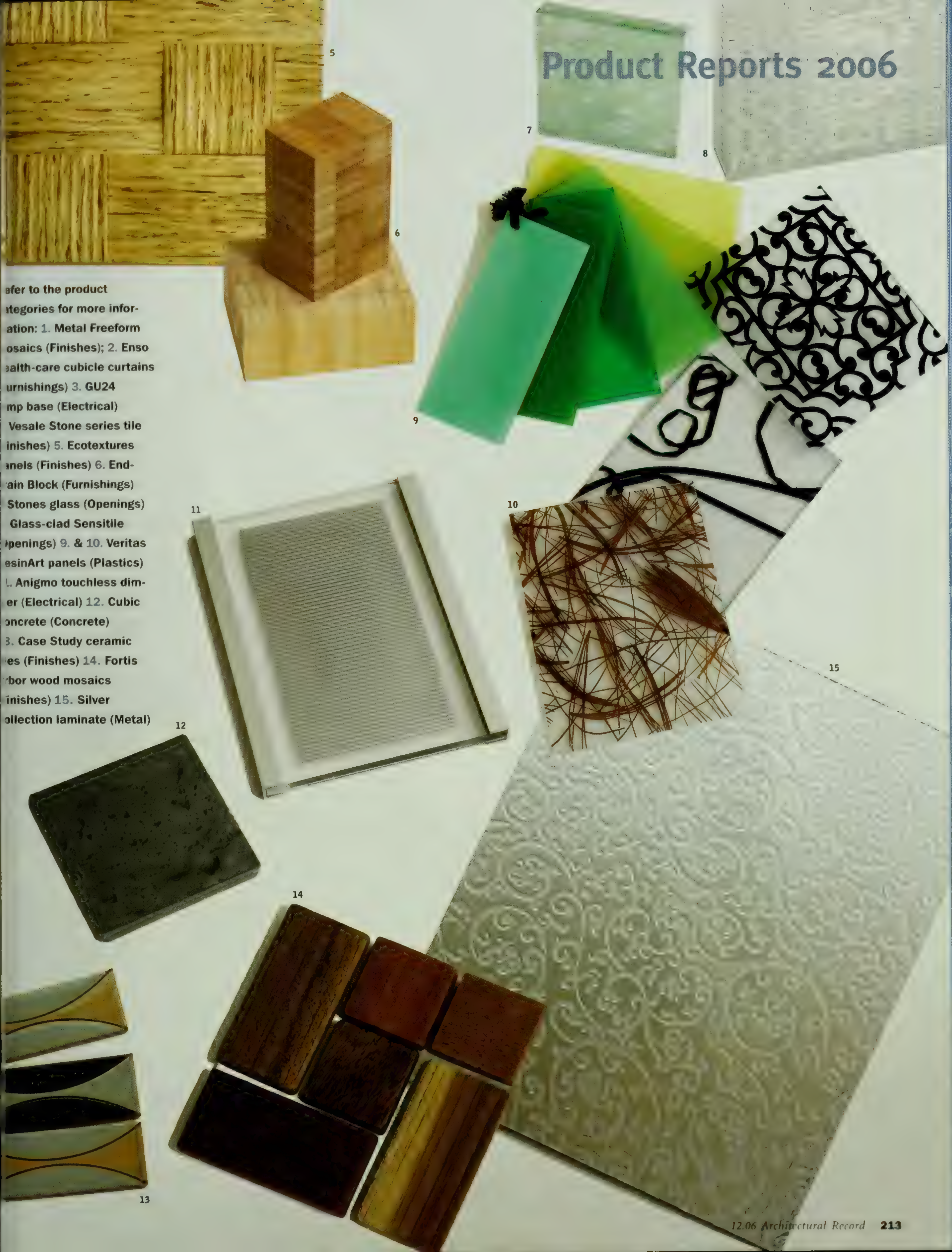
The jury appreciated the chance to review actual samples of the products and materials. Feeling the texture and quality and seeing the detailing of those entries was a great help to the selection process.

This year, for the first time, we added a Prototypes category as part of Product Reports in order to acknowledge several outstanding designs and materials that are not quite ready for production. While it might take some time for these designs to be fully realized, we thought including them would both inspire our readers and encourage the designers and manufacturers who are featured.

Our jury often finds a different theme running through the entries, and this year they were intrigued by the integration of LEDs into a variety of unexpected materials and products, including exterior mesh, carpet, and faucets. A few jurors were pleasantly surprised by the breadth of new options in the Concrete category, such as a new bendable concrete and a concrete prototype that reveals hidden patterns upon contact with water. Favorites from other categories included pebble-shaped mosaics made of metal (Finishes), a ridge vent made of natural fibers (Thermal & Moisture Protection), and a new textile that hardens upon impact (Prototypes). As always, the jury appreciated the chance to review actual samples of the products and materials. Feeling the texture and quality and seeing the detailing of those entries was a great help to the selection process.

That's not to say our jury found everything they were hoping to see. They would have liked to have reviewed a greater range of options in flooring and seen more of a selection in masonry (none of the latter were selected to appear). Across the board, they preferred designs that avoided looking trendy or easily dated.

We hope that you find this year's Reports a helpful resource over the course of the new year. Rita Catinella Orrell, Products Editor



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. Anigmo touchless dim-
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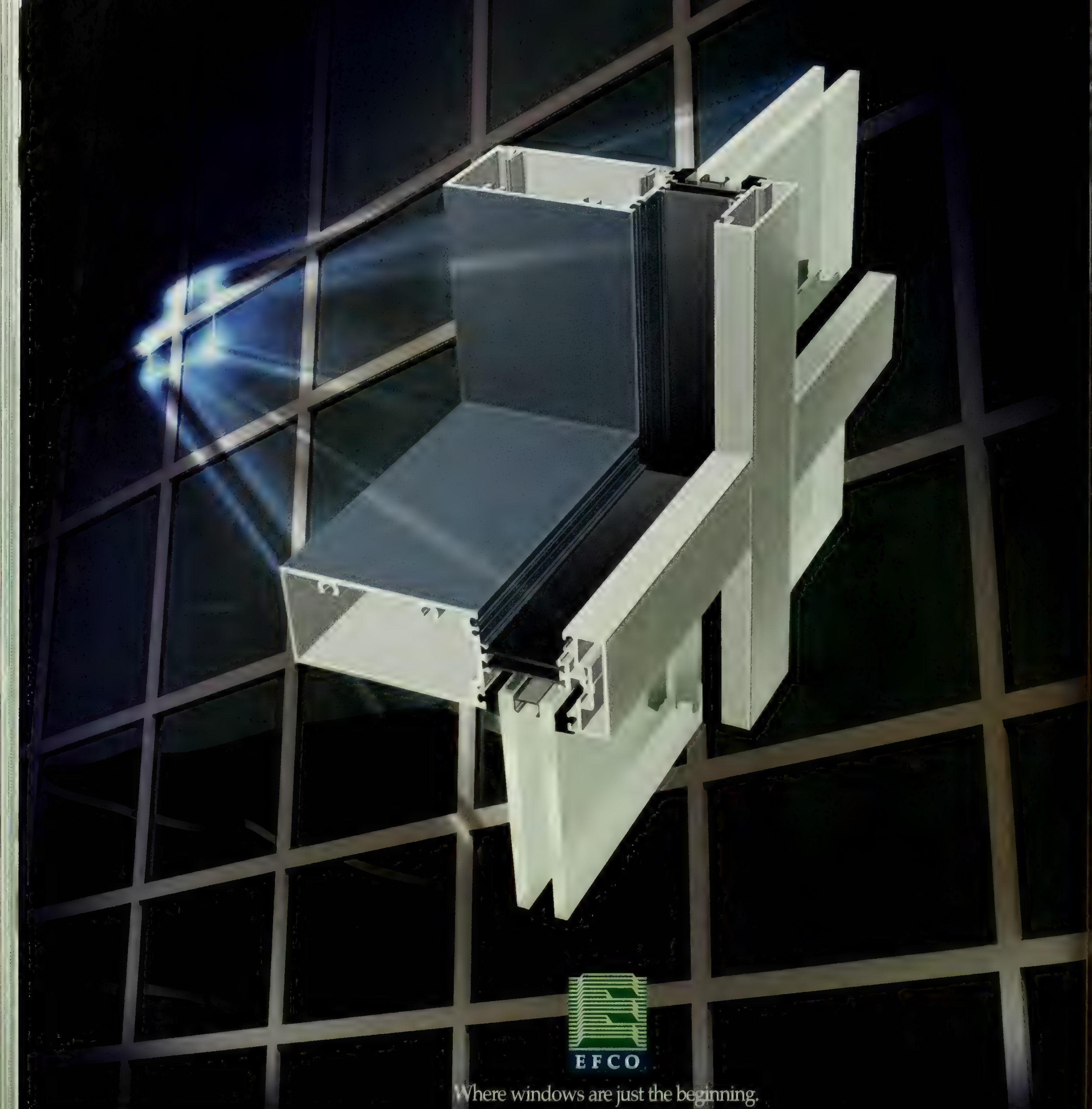

When you specify EFCO's 5500 curtain wall, you get a system that delivers performance and value. 5500 utilizes the E-Strut™ thermal isolator for superior thermal properties and a total composite shape for enhanced structural performance. This design allows the use of different interior and exterior finishes, for enhanced versatility. Since there is no pressure plate or cover to assemble, 5500 offers significant labor savings. With EFCO's 5500 curtain wall system you don't have to choose between performance and value.

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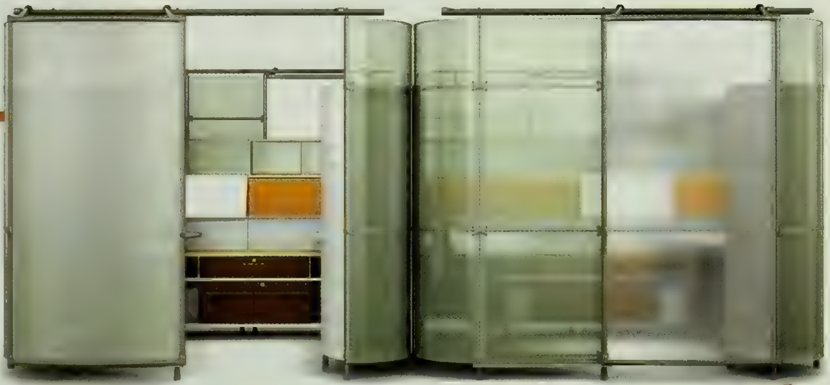
Editors' Picks

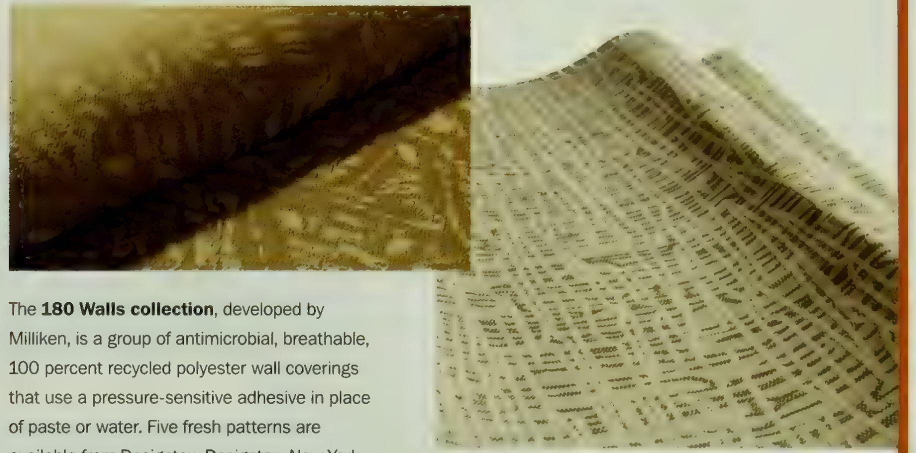
This grouping of memorable introductions from the past year ranges from a breathable wall covering to a hurricane-tough cladding. These thoughtful designs work harder and smarter to help meet multiple project goals with a single product solution. *—R.C.O.*

This Green Seal–certified **Yolo Colorhouse** interior paint line is VOC-free, mold- and mildew-resistant, and features a novel sampling system including poster-size swatches coated with real paint. Yolo Colorhouse, Portland, Ore. www.yolocolorhouse.com **CIRCLE 200**



Designed by Douglas Ball, **My Studio's** high walls on the aisle side and short walls at the back foster conversations between people who work closer together. My Studio consists of 74 percent recyclable components, 28 percent recycled materials, and is GreenGuard certified. A sliding door for privacy is an extra bonus. Herman Miller, Zeeland, Mich. www.hermanmiller.com **CIRCLE 201**

By adding a thin layer of **Kevlar fabric to Reynobond's** polyethylene core, Alcoa has created the only light, flexible, aluminum-composite panel that can withstand hurricane-propelled debris without the use of backer materials. The panel is able to withstand wind speeds up to 130 mph. Alcoa, Eastman, Ga. www.reynobondwithkevlar.com **CIRCLE 202**



The **180 Walls collection**, developed by Milliken, is a group of antimicrobial, breathable, 100 percent recycled polyester wall coverings that use a pressure-sensitive adhesive in place of paste or water. Five fresh patterns are available from Designtex. Designtex, New York City. www.designtex.com **CIRCLE 203**

Gaggenau entered the U.S. refrigeration market with a **modular column refrigeration and freezer system**. A heavy-load door holds up to 200 pounds of weight (allowing for a range of custom cladding options) and a motorized shelf adjusts at the touch of a button, even fully loaded. Gaggenau USA, Huntington Beach, Calif. www.gaggenau-usa.com **CIRCLE 204**

Prototypes

The following products and technologies, currently in development for the A&D market, impressed and inspired our jury with their innovation, creativity, and potential. *—R.C.O.*

Animated lamp

Designed by the Tokyo-based design firm Nendo, the Hanabi lamp was on display at this year's Milan Furniture Fair along with other designs that "resemble natural phenomena". Hanabi is a shape-memory alloy lamp whose thin ribs "bloom" in response to the heat of the incandescent bulb. When the light is turned off, they slowly "wither" and return to a closed position. Nendo is currently negotiating with an Italian manufacturer for production. Nendo, Tokyo. www.nendo.jp **CIRCLE 205**

Illuminating rooftops

These LED roof tiles developed by Dutch designer Lambert Kamps have been produced for some small custom projects. The translucent polyester roof tiles have built-in LEDs that work like pixels to create text, logos, and graphics on rooftops. Kamps is currently researching a method to make the tiles run on solar energy. Lambert Kamps, Groningen, The Netherlands. www.lambertkamps.com **CIRCLE 206**

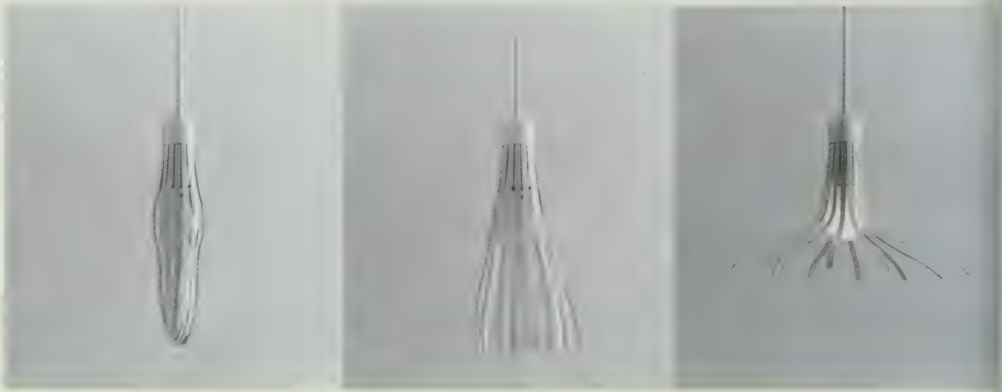
Poetry in concrete

Inspired by how the weather transforms landscapes, designer Susanne Happle's Solid Poetry concrete reveals a hidden pattern on contact with water. Possible applications include residential bathroom tiles, outdoor garden pavers, or public sidewalks. The patterns will be permanently visible after a period of time. Terratorium, a Dutch-based materials company, hopes to have the patent-pending technology in production by mid-2007. Terratorium, Eindhoven, The Netherlands. www.terratorium.nl **CIRCLE 207**

Gecko-inspired adhesive

Synthetic Gecko is an artificial surface that grips incredibly tightly without glue or pressure: A sheet of the material just over 3.3 feet (1 meter) could be used to suspend the weight of an average family car. The surface replicates the hairs on a gecko's feet that ensure the toes are always in close contact with the surface beneath. A number of potential business applications includes new building products. BAE Systems, Farnborough, U.K. www.baesystems.com **CIRCLE 208**

> I love the organic form of this lamp [Hanabi], its wonderful transformation, and how it occupies space. It would look beautiful used in a field of varying heights. *—SUZAN TILLOTSON*



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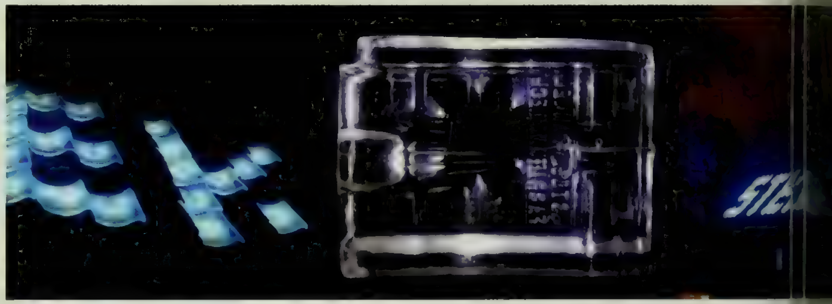

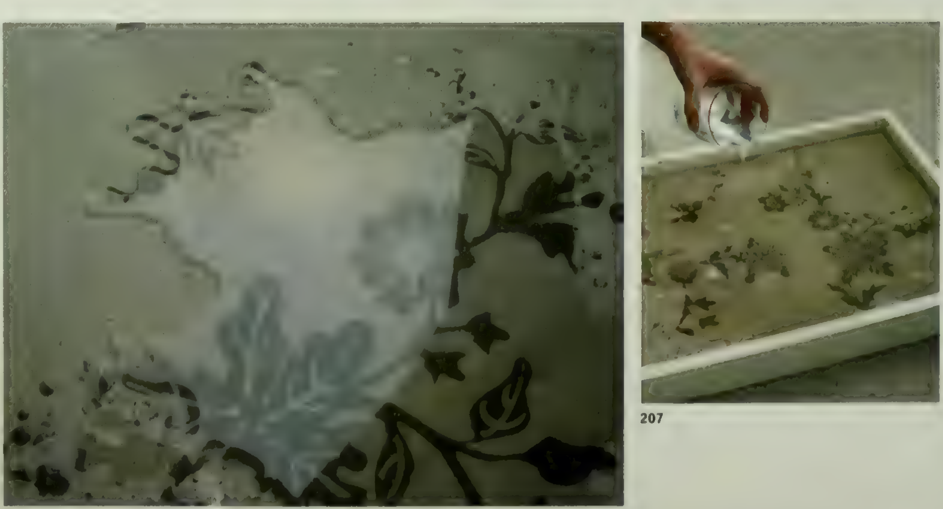

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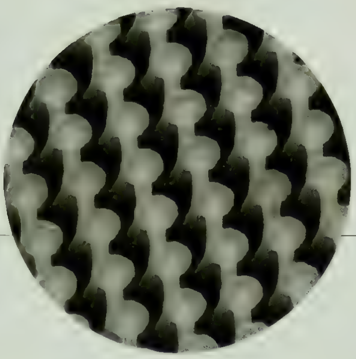

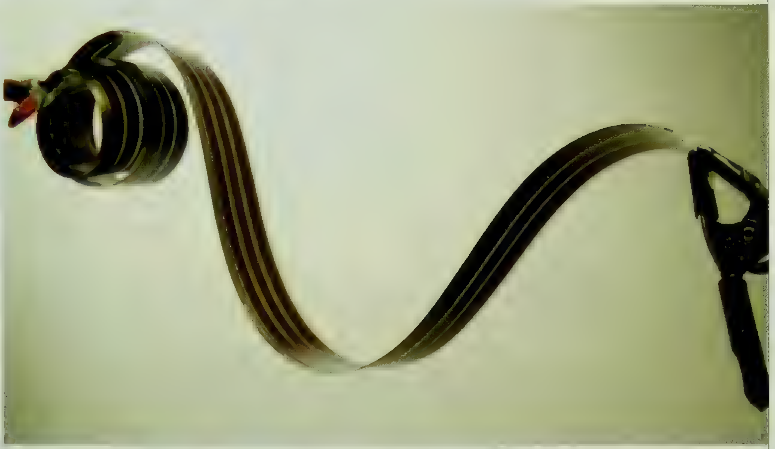

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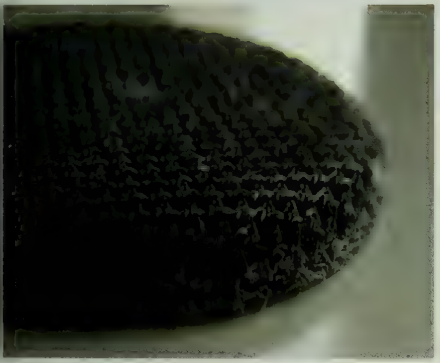

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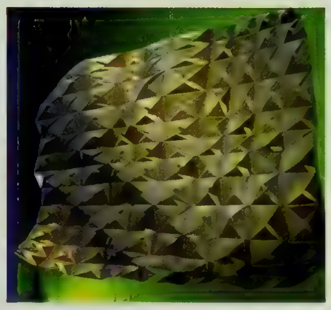

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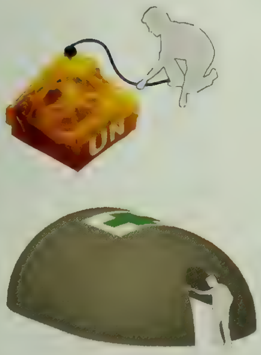

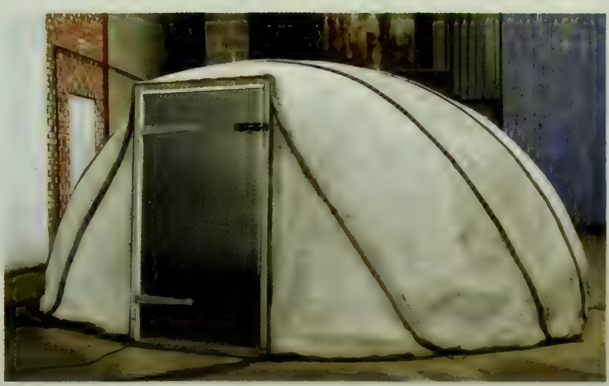

The power of the sun

Power Plastic is inexpensive (five times less than traditional PV), lightweight (1 to 2 ounces per square foot), and versatile (can be colored, patterned, and cut to fit). The light-activated polymer PV material can be integrated into architectural products such as rooftops, siding, and blinds, although there are no current partnerships in the A&D market. Konarka, Lowell, Mass. www.konarka.com **CIRCLE 209**

Can take a punch

The Dow Corning Active Protection System consists of a 3D spacer textile treated with a special coating that remains soft and flexible under normal conditions, but hardens instantly upon impact. When the impact force is removed, the material immediately returns to a flexible state. Dow Corning will initially market the technology to manufacturers of protective motorcycle apparel, but anticipates expansion into other industries, including construction. Dow Corning, Midland, Mich. www.activeprotectionsystem.com **CIRCLE 210**

Origami light filter

Conceived as a hybrid drape/Venetian blind, the In-Out Curtain is an operable screen that combines origami and digital production. Each module of the curtain is designed with internal tensions so it holds both a closed/concave and an open/convex shape, transforming the quality of light. IwamotoScott Architecture, San Francisco. www.iwamotoscott.com **CIRCLE 211**

Building in a bag

Designed by Peter Brewin and William Crawford, Concrete Canvas is a rapidly deployable hardened shelter for disaster victims. The system is delivered folded and sealed in a sack which is then filled with water. After the cement inside is hydrated, the sack is unfolded to form the shelter's footprint. A plastic inner tube is then inflated by activating a small chemical pack. The cement impregnated cloth cures into a dome shape, and is ready to use in 12 hours. Seven trial shelters are planned to be field tested by April 2007 and production should start in April 2008. Crawford Brewin Ltd., Northhampton, U.K. www.concretecanvas.org.uk **CIRCLE 212**

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Top Ten Green Products

The 2006 Top 10 Green Building Products, announced by BuildingGreen at last month's GreenBuild show in Denver, offer a variety of environmental attributes.

Retrieving sunken treasure

The Sawfish logging submarine harvests standing trees from forests that were submerged decades ago by reservoirs created by hydroelectric dams. Clamping onto the tree, the Sawfish attaches nflatable floats and then cuts the trunk with an electric chain saw: The tree then floats to the surface without disturbing sediments. All of the milled wood is certified as SmartWood Rediscovered by the Rainforest Alliance. Triton Logging, Saanichton, B.C. www.tritonlogging.com CIRCLE 213

Blowing in the wind

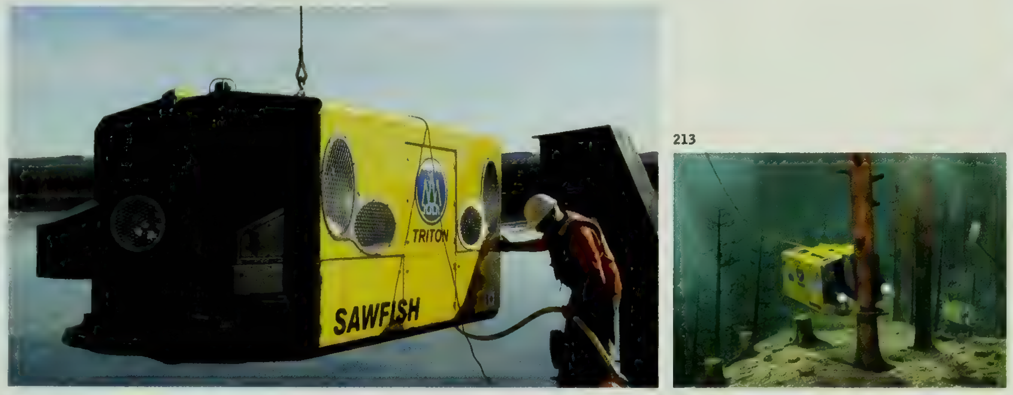
Renewable energy credits (RECs) provide building owners who are unable to install their own renewable energy systems a way to buy conventional grid power while also buying the environmental attributes of electricity produced from renewable energy. Community Energy, a leading North American provider of RECs, owns and develops wind farms that to date have sold over 3 billion kwh of wind energy. Community Energy, Wayne, Pa. www.communityenergy.biz CIRCLE 214

Avoid the watering hole

The WeatherTRAK irrigation control system uses local weather conditions to examine evapotranspiration rates and regulate water delivery accordingly, so irrigation will take place in the correct amounts, and not if rainfall is occurring or predicted. The system has been shown to reduce outdoor water use by up to 59 percent. HydroPoint Data Systems, Petaluma, Calif. www.weathertrak.com CIRCLE 215

Salvaging beauty

Varia (right) is 3form's line of transparent and translucent panels made from its 40 percent preconsumer-recycled-content Ecoresin. Some Varia products include plant materials collected by indigenous peoples using environmentally responsible practices. 100 Percent panels (left) are made entirely of postconsumer-recycled HDPE. (For more info, see page 225.) 3form, Salt Lake City. www.3-form.com CIRCLE 216



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Top Ten Green Products

Plumbing fixtures • Glass and glazing • Central HVAC equipment • Countertops • Plastic simulated-wood trim • Concrete finishing

Night and day

SageGlass is an electronically tintable exterior glazing that provides glare control on demand while preserving views. Within minutes, the glass switches from a clear to tinted state, significantly reducing the solar heat gain coefficient. Sage Electrochromics, Faribault, Minn. www.sage-ec.com **CIRCLE 217**

Shower saver

Using just 1.6 gallons of water per minute—a 36 percent savings—Delta's Water-Efficient Showerhead incorporates H_2OKinetic Technology to produce large droplets at optimal velocity for good heat retention and body drenching. Delta Faucet Company, Indianapolis. www.deltafaucet.com **CIRCLE 218**

Dry cool

Up to three times as efficient as the best compression-cycle air conditioners, the Coolerado Cooler is an all-indirect evaporative air-conditioning system that does not add any moisture. Cooling output is optimal in drier areas in the western United States. Coolerado, Arvada, Colo. www.coolerado.com **CIRCLE 219**

Wood alternative products

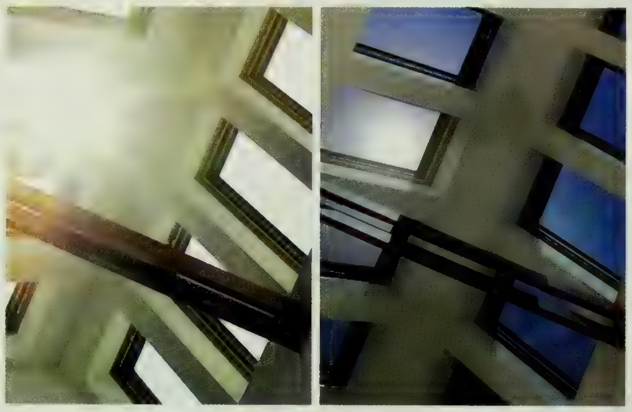
Timbron's interior moldings are made from 90 percent recycled polystyrene. The highly durable, waterproof, termite-proof, paintable surfaces are fully workable with carpentry tools and ideally suited for kitchens, bathrooms, laundry rooms, and basements. Timbron, Walnut Creek, Calif. www.timbron.com **CIRCLE 220**

Rock, paper, countertops

Made from cellulose fiber, PaperStone is a dense, hard, water-resistant material with many applications. Two versions are available, one containing at least 50 percent postconsumer-recycled paper, the other containing 100 percent. KlipTech Composites, Hoquiam, Wash. www.paperstoneproducts.com **CIRCLE 221**

From slab to finished floor

RetroPlate's concrete polishing system has been used on more than 100 million square feet of flooring for surfaces that are highly durable, easy to maintain, and free of VOC emissions. RetroPlate, Provo, Utah. www.retroplatesystem.com **CIRCLE 222**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Circle Number 130

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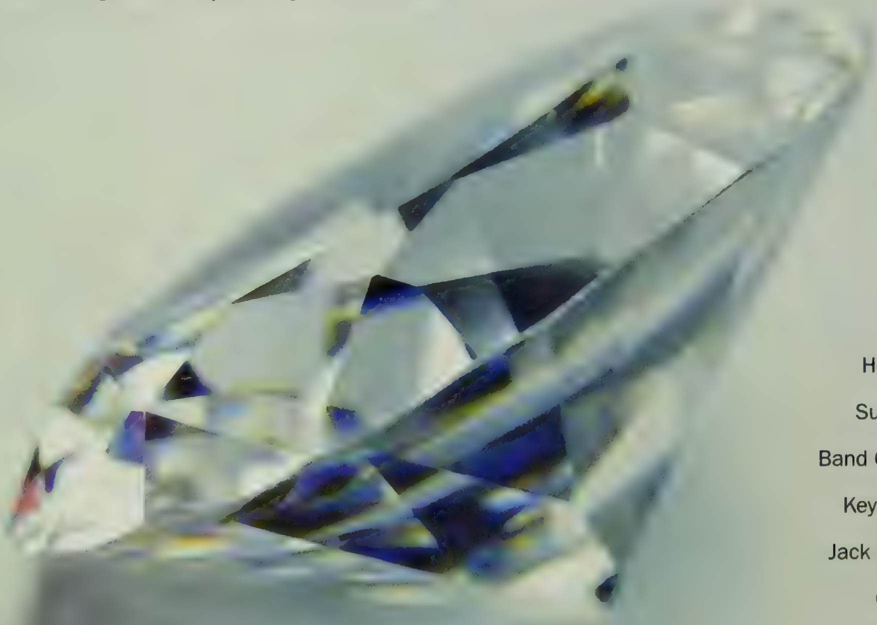

Sills
Headers
Surround
Band Course
Keystones
Jack Arches
Quoins
Treads/Door Sills

Size Matters

When it comes to masonry openings, genuine Indiana limestone is strong enough to be long enough. Victor Oolitic natural limestone sills are available in lengths of up to nine feet. A single sill is able to span most window or door openings without the vertical mortar joints of soldier-course masonry or cast masonry. Exposed, vertical mortar joints create the potential for long-term water damage. Further, a single sill allows the mason to set one piece instead of many, saving time and money. Victor Oolitic Stone Company offers a brilliant selection of genuine limestone accent pieces, all diamond-cut, quality-crafted and all-natural.

For more information on Victor Oolitic products, ask your local brick distributor, call 812.824.2621 or visit www.VictorOolitic.com.

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Concrete

Cast-in-place concrete • Precast concrete • Concrete forming and accessories

> This was the most interesting category, to my surprise. With nonstaining and lightweight cast versions, as well as new graphic effects, concrete is getting creative. —ANDREW DENT

Bendable concrete

Engineered Cement Composites (ECC) is a fiber-reinforced bendable concrete that looks like regular concrete but is 500 times more resistant to cracking and 40 percent lighter in weight. Tiny fibers that make up about 2 percent of the mixture's volume partly account for its performance. The Glorio Roppongi high-rise residential building in Tokyo uses ECC coupling beams in the core for seismic resistance. University of Michigan, Ann Arbor, Mich. www.umich.edu CIRCLE 223

Reinforced furniture

The Company of Arts workshop creates light concrete pieces reinforced with synthetic fibers. Abrasion-, chemical-, and weather-resistant, the concrete can be formed into smooth, lightweight pieces with color throughout the mass. The Company of Arts, Andard, France. www.beton-lcda.com CIRCLE 224

Stainless, but not steel

Made of actual concrete (not an epoxy-covered surface), Nucrete stainless concrete can withstand harsh acids and oils. It is created by modifying concrete's traditional curing and finishing process and introducing some proprietary additives to the batch mix and finish. Sonoma Cast Stone, Petaluma, Calif. www.sonomastone.com CIRCLE 225

Concrete sandwich

The Thermomass Building Insulation System for cast-in-place concrete is composed of a core of Dow Styrofoam–brand polystyrene insulation sandwiched between two layers of concrete, all fastened together by high-strength, fiber-composite connectors. Composite Technologies, Boone, Iowa. www.thermomass.com CIRCLE 226

Hand-cast and lightweight

The Cubic Concrete Collection includes lightweight concrete furniture elements, wall panels, and cladding with a monolithic feel. Each hand-cast piece weighs up to 70 percent less than standard concrete. Architectural Systems, New York City. www.archsystems.com CIRCLE 227

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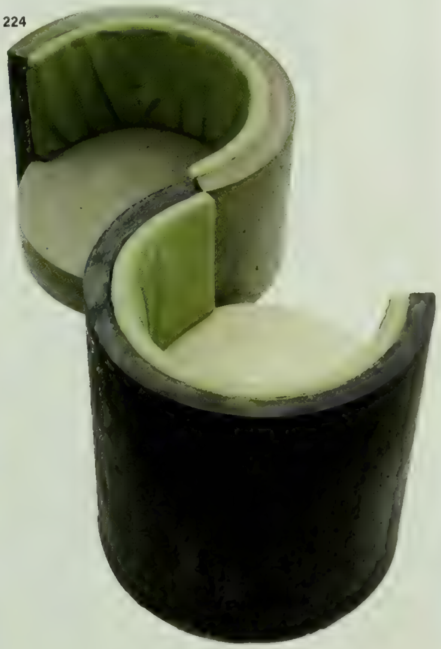

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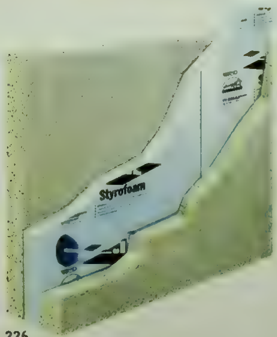

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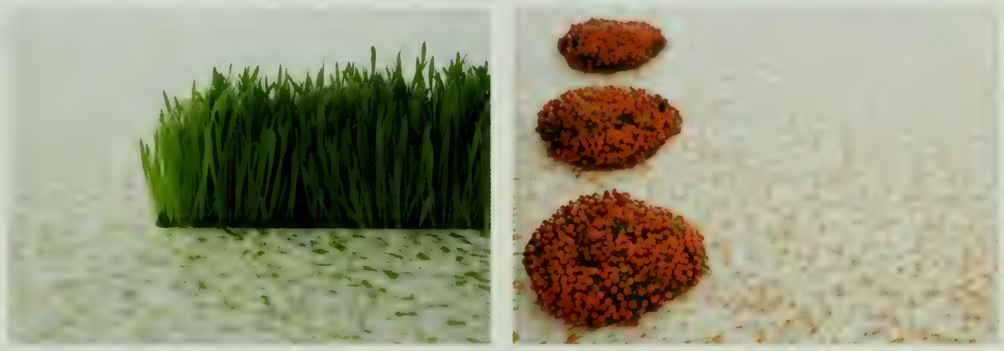
Metal, Woods, Plastics & Composites

Metal stairs and railings • Cold-formed metal framing • Decorative metal • Metal specialties • Rough carpentry • Wood treatment • Plastic and composite fabrications

> Titan Wood [by Accoya] is an interesting process. It does not use toxic chemicals, so it is an improvement on other chemical treatments. —*ANDREW DENT*

Transforming waste

3form was launched in 2001 to provide architectural services and products that offer high-level aesthetics without sacrificing safety, affordability, or environmental responsibility. 100 Percent is a new design-driven material made entirely from postconsumer, high-density polyethylene, including recycled detergent and shampoo bottles. The engineered panels, which are ideally suited for education, science, and health-care environments, are available in four color patterns, including cut grass (left) and orange slice (right). 3form, Salt Lake City. www.3-form.com CIRCLE 228



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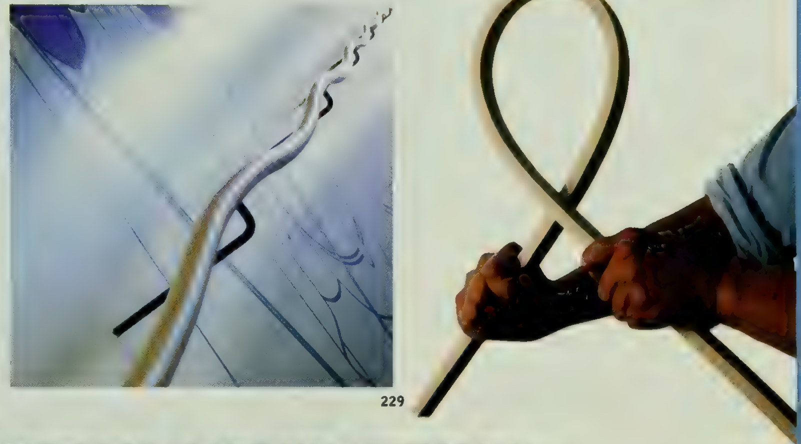
Bend it like Beckham

Bendywood is an all natural, solid hardwood that easily bends in a cold and dry state. No chemicals are used in the production process, which involves steaming and then compressing the wood along its length. Bendywood can be bent up to a radius of 10 times its thickness, and thin pieces can readily be bent by hand. Bendywood is commonly used for curved or organically shaped handrails, glazing beads, skirtings, decorative profiles and sculpture, and model making. It is available in beech, ash, oak, and maple. Decorative Components, High Point, N.C. www.bendywood.com CIRCLE 229



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Filmic facade treatment

Mediamesh is a stainless-steel fabric interwoven with LED strips. The LEDs, controlled remotely via a Web-based interface, display large-scale imagery from static logos to dynamic action. Unlike LED boards or temporary single-pixel systems, Mediamesh is permanently weather- and temperature-resistant and can even be installed below an ice surface. When the imagery is not in use, the transparent fabric is a striking cladding for a variety of building types, including high-rises, stadiums, and airports. GKD-USA, Cambridge, Md. www.gkdmetalfabrics.com CIRCLE 230

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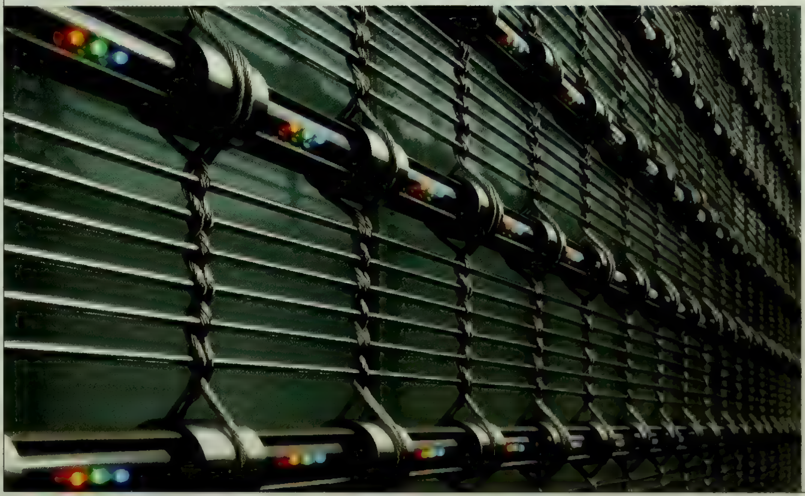

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Metal, Woods, Plastics & Composites

Decorative metal • Metal specialties • Rough carpentr
Wood treatment • Plastic fabrications

The future of fiberboard

Made from 100 percent unbleached softwood fibers from sustainably managed forests, Maplex is produced using only water, heat, and pressure. By eliminating binders, formaldehyde, and petroleum-based products, Maplex is both nontoxic and biodegradable. Two types are available: Maplex C, a medium-density, highly flexible version that can be rolled and formed; and Maplex P, a stronger, high-density version with good dimensional stability (twice the bending and tensile strength of birch plywood). Both can be punched, drilled, laminated, stained, or coated, and are suitable for most interior applications. EHV-Weidmann Industries, St. Johnsbury, Vt. www.maplexmaterial.com **CIRCLE 231**

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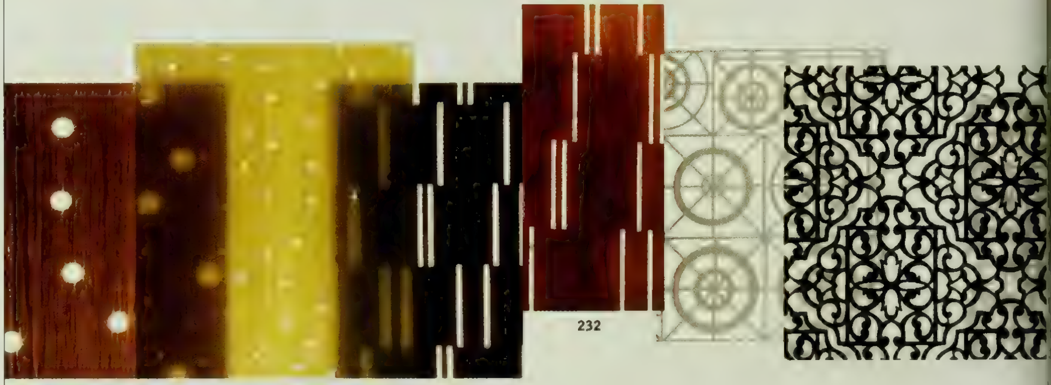
True colors

Schneller has added two new collections to its already extensive Veritas ResinArt Panels product line design directed by Marybeth Shaw. The Wood Veneer series (shown left) utilizes laser-cutting technology on paper-thin wood veneers that are illuminated and encapsulated within resin skins. The Piper Shepard series (right), named for the artist, features three printed patterns—Kaleidoscope, Lancet, and Pendant—that are taken directly from the hand-cut canvas technique used in the artist's fine art. Panels range from 3/16" to ½" thick and are available in 4' x 8', 4' x 10', and 5' x 10' dimensions. The lines are made from up to 25 percent recycled plastic and are available through Robin Reigi Inc. Robin Reigi Inc., New York City. www.veritasideas.com **CIRCLE 232**



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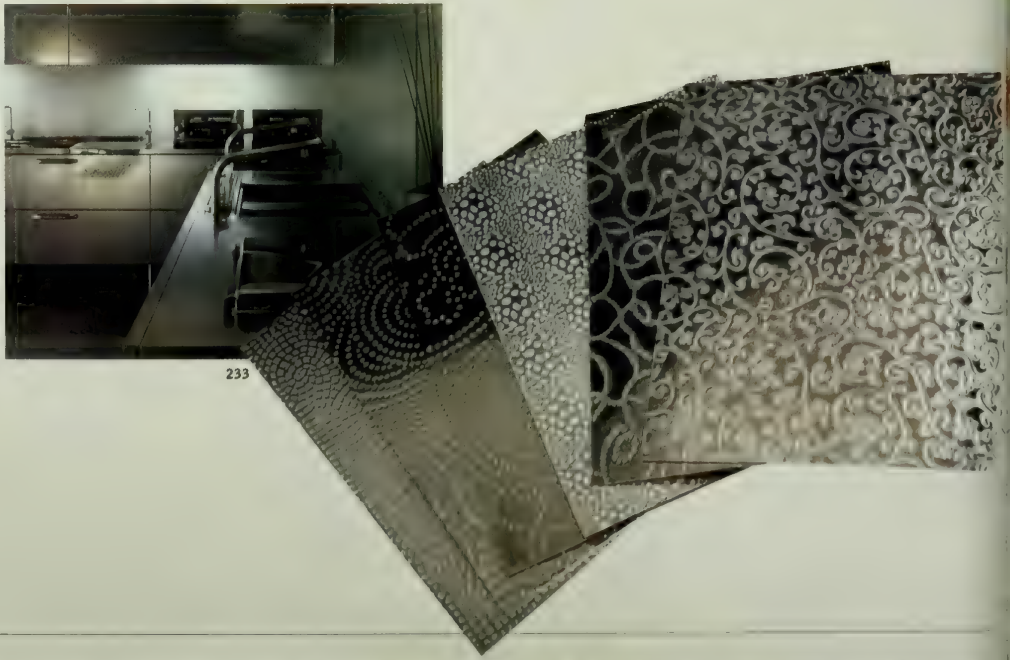
Use your illusion

The Silver Collection by Abet Laminati features high-pressure laminates with a shiny metal finish. The aluminum surface, which is reverse-printed and adhered to the laminate, is protected by a lacquering and anodizing process. Six intricately designed patterns ranging from florals to swirls and dots, appear to be hammered into the laminate to create texture on the flat surface. Sheet sizes are 4' x 10' for use on kitchen cabinets or any vertical surface. Abet Laminati, Englewood, N.J. www.abetlaminati.com **CIRCLE 233**



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Metal, Woods, Plastics & Composites

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Rough carpentry • Wood treatment • Plastic fabricatio

Tattooed solid surfacing

Dye Sublimation in Corian, manufactured exclusively by R.D. Wing Company, is a new, three-step heating transfer and compression process that allows any image or graphic to be transferred onto Corian. The end result is an image that, like a tattoo on skin, actually becomes a part of the Corian surface. R.D. Wing Company, Kirkland, Wash. www.blimages.com **CIRCLE 234**

Cold-formed metal framing

The premanufactured Steel Strong Wall features allowable loads that are substantially higher than traditional X-bracing or structural sheathing. Prepunched for wiring, the narrow panels allow designers the flexibility to create structures with larger window and door openings. Simpson Strong-Tie, Pleasanton, Calif. www.strongtie.com **CIRCLE 235**

Simplified cable system

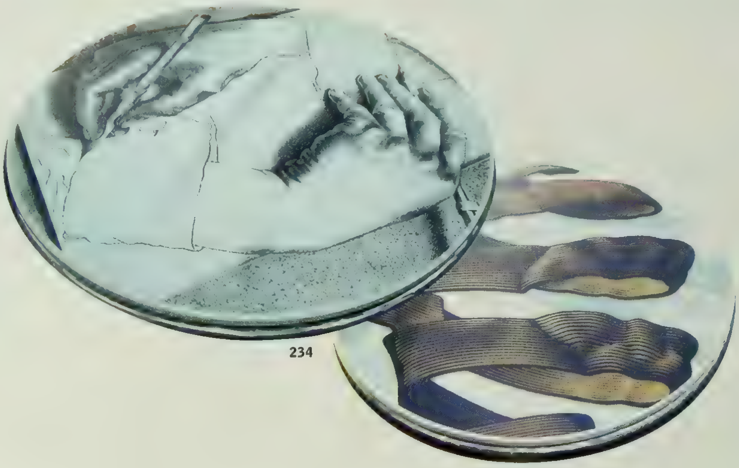
Stainless steel Push-Lock simplifies the installation of cables in cable railings by eliminating the need for special crimping equipment at the job site. Cables come with a tensioner on one end and bare cable at the other—installers cut the cable to length, push on the Push-Lock fitting, and tension the cables. The Cable Connection, Carson City, Nev. www.ultra-tec.com **CIRCLE 236**

Sustainable new species

Accoya, from U.K.-based Titan Wood, is produced using a patented acetylation process that converts sustainably forested softwoods and nondurable hardwoods into a modified wood product that offers durability, dimensional stability, and a nontoxic, 100 percent recyclable alternative to tropical hardwoods, biocide-treated woods, and artificial materials in external applications. Titan Wood, Earlston, U.K. www.titanwood.com **CIRCLE 237**

Time-saving wood backers

The Danback wood backing system for steel-framed construction claims to save 90 percent of the time required to install individual backers. Danback units are 48" precut assemblies suitable for 16" or 24" on-center framing. They are intended to help anchor shelves, counters, sinks, and other wall fixtures. Arch Wood Protection, Smyrna, Ga. www.dricon.com/danback **CIRCLE 238**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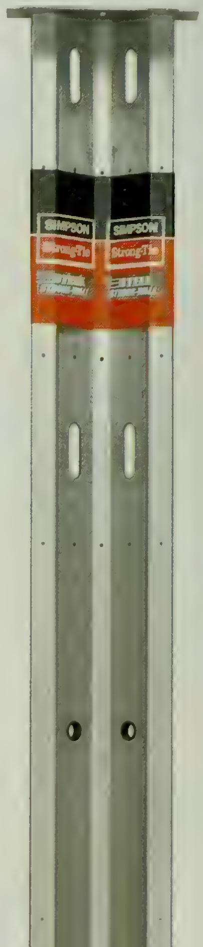
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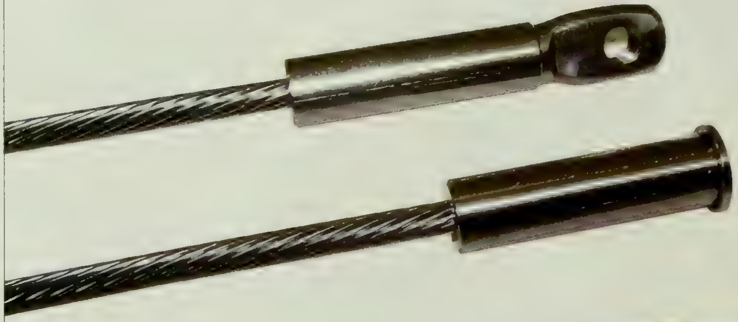
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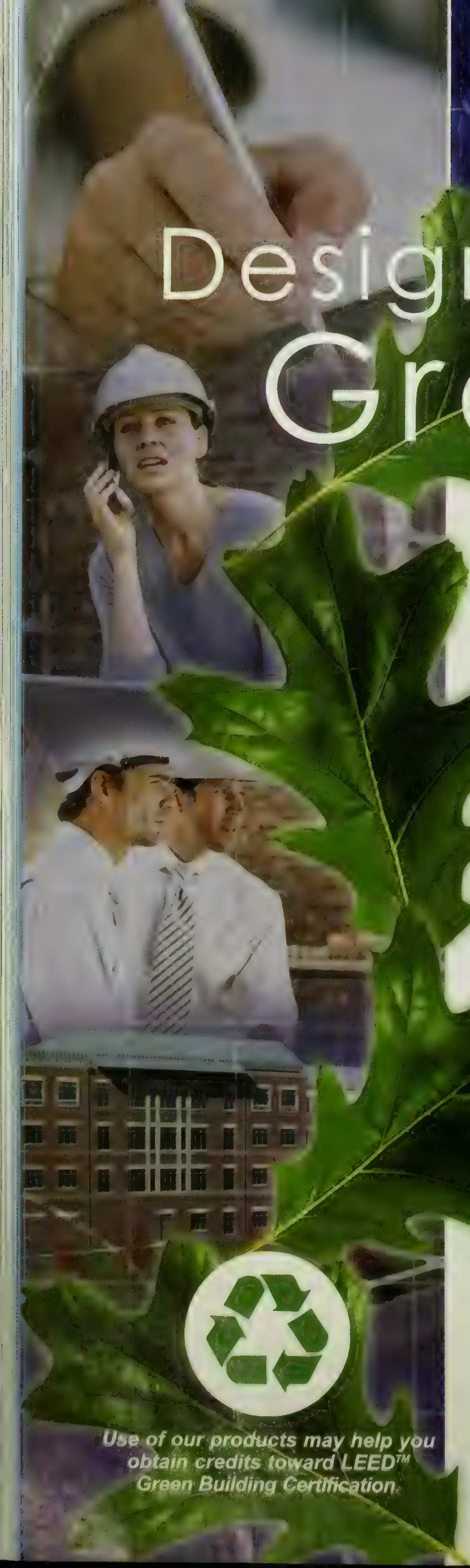

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A mold-free building–like a virus-free body–begins by defending the skin.

Much attention has been focused in recent years on mold caused by failures of internal systems, like plumbing and air conditioning. Thanks to that scrutiny, serious internal failures have become somewhat less common.

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Batten seam roof look

Sarnafil's Décor Roof Systems are an option for new or existing buildings that call for a metal appearance with the watertight integrity and design flexibility of a thermoplastic roofing membrane. Four new colors meet Energy Star and LEED requirements for solar reflectance and emissivity ratings. Sarnafil, Canton, Mass. www.sarnafilus.com **CIRCLE 239**

Hurricane proof the roof

The Extruded TerminEdge roof edge fascia is a two-piece system that speeds up fascia installation for single-ply, modified, and built-up roof systems. The product clamps the membrane against the building like a termination bar, preventing leaks and blow-offs. It comes with a 25-year, 155-mph Category 5 warranty. W.P. Hickman Systems, Solon, Ohio. www.wphickman.com **CIRCLE 240**

Natural fiber ridge vent

Roof Saver is a continuous ridge-vent system utilizing a patented design of natural fiber materials suitable for asphalt, shakes, tile, and standing-seam metal roofs. It is made of postindustrial coir (coconut fiber) and animal fiber held together with a sprayed latex binder. Roof Saver, Michigan City, Ind. www.roofsaver.com **CIRCLE 241**

Dual-sided flashing tape

DuPont StraightFlash Versatile Flange (VF) is a dual-sided flashing tape designed to reliably provide a durable seal around brick-mold and nonflanged windows and doors. The tape helps guide water safely outside and helps prevent bulk water leaks during a range of temperatures and weather conditions. DuPont, Wilmington, Del. www.construction.tyvek.com **CIRCLE 242**

See-through housewrap

Gorilla Wrap housewrap is a nonperforated, nonwoven polymeric polypropylene wrap material that is strong, water-resistant, and energy-efficient. Since the wrap is translucent, builders can see the studs, nails, and windows, improving installation time. Johns Manville, Denver. www.gorillawrap.com **CIRCLE 243**

> Décor Batten will allow architects to establish a look that replicates metal-batten roofing with a less expensive single-ply system. —*HERBERT MARTIN LYNN, AIA*

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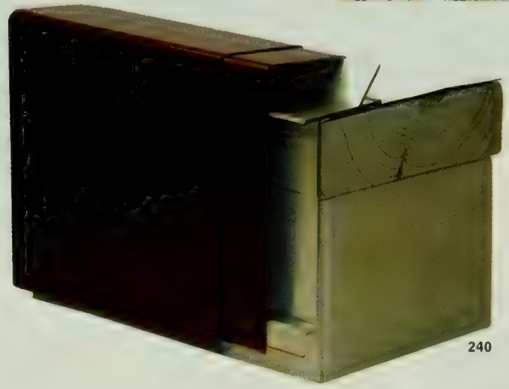

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Openings

Doors and frames • Windows • Window screens • Roof windows and skylights • Window and door hardware • Security door hardware • Glass and glazing

Wood grid controls light

Okawood insulating glass offers a way to integrate the warmth of wood into curtain-wall glass. The system is composed of two panes of glass, with a wood grid placed between the panes that provides solar protection yet still allows daylight to enter. The type and width of wood, as well as the intervals within the grid, can be customized. Schott N.A., Elmsford, N.Y. www.us.schott.com **CIRCLE 244**

Sleek security

The Dialock door terminal offers maximum security with the latest transponder technology in a sleek, stainless-steel package. Touchless key recognition provides LED signals to identify operations. More than 200 keys can be authorized for use at a single terminal, while hotel versions feature a "Do Not Disturb" function. Hafele America, Archdale, N.C. www.hafele.com **CIRCLE 245**

Screen saver

Andersen TruScene insect screen (shown on left side of window) is made with a virtually invisible, high-strength stainless-steel material to provide clearer views and greater airflow. Noticeably less visible from outside the home as well, the patented screen material features 40 percent smaller mesh openings than standard Andersen screens to protect against the smallest bugs. Andersen Windows, Bayport, Minn. www.andersenwindows.com **CIRCLE 246**

French fold

Jeld-Wen's IWP Exterior Folding Door System combines the style and customization opportunities of a classic French door, with the updated benefits and features of a sliding door. Operating "accordion style," the door sections slide on an overhead track and neatly fold away to allow full access to the indoors or outside. Available in hardwood or fiberglass with low-E-glass options for energy efficiency and UV protection. Jeld-Wen, Klamath Falls, Ore. www.jeld-wen.com **CIRCLE 247**

> I like that window manufacturers are going back to long-lasting hardware rather than cranks that break easily.
>
> —*MATTHEW C. PETRIE, AIA*

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Openings

Doors and frames • Windows • Window screens • Roof windows and skylights • Window and door hardware • Security door hardware • Glass and glazing

Clad in metal and wood

The Cyprium Collection by Loewen features copper- and-bronze-clad windows and doors with artisanal details including soldered exterior joints. The hand-wrought surfaces develop distinctive patinas. Loewen's 10-Foot Terrace Door, available in clad and natural wood exteriors, caters to the growing trend of large entrance ways. Loewen, Manitoba, Canada. www.loewen.com **CIRCLE 248**

Glass stones

Created in part using recycled transparent glass reclaimed from job sites or fabricators, Stones is the latest addition to a collection of handcrafted, kiln-cast glass whose theme of abstractions of organic building materials forms the design foundation for multidimensional textured glass. Joel Berman Glass Studios, Vancouver. www.jbermanglass.com **CIRCLE 249**

Temperamental tile

Sensitile Scintilla Glass is another PMMA hybrid product in the Scintilla line with the ability to react and respond to surrounding objects and lights, but features the elegance and durability of a glass surface finish. Sensitile Systems, Detroit. www.sensitile.com **CIRCLE 250**

Natural light source

Designed to replace electric lights during daylight hours in large commercial and industrial spaces, Huvco's High Performance Daylighting System utilizes a unique dual prismatic top dome. The highly reflective light well channels sunlight from the dome down to the interior diffuser, which is created from a prismatic acrylic to diffuse daylight without harsh glare. Huvco, Rohrersville, Md. www.huvco.com **CIRCLE 251**

A bright future

Solarban 70XL glass combines an exceptional level of solar control with a clear glass aesthetic. Combined with traditional clear glass in a conventional 1" insulating glass unit, Solarban 70XL blocks up to 73 percent of the sun's solar energy while transmitting more than 63 percent of its visible light, creating greater energy savings than other high-performance, nontinted, low-E glass. PPG Industries, Pittsburgh. www.ppgideascapes.com **CIRCLE 252**

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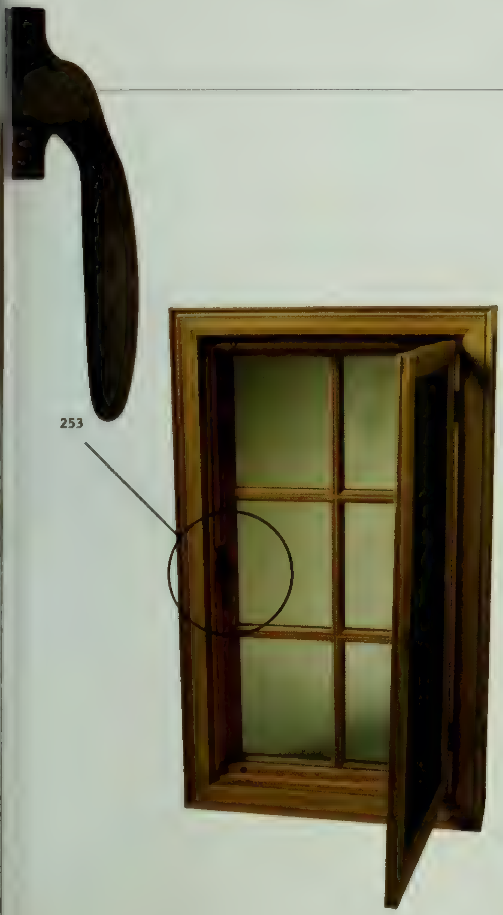

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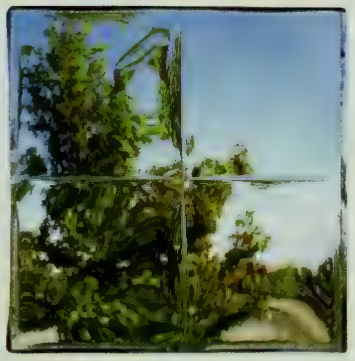

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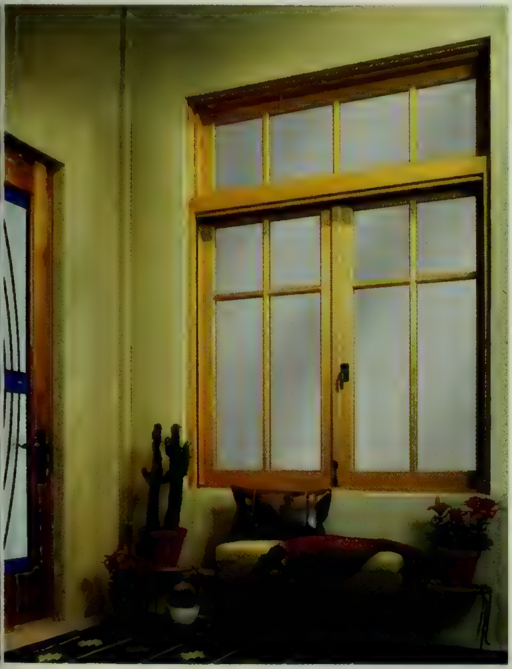

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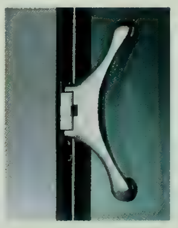

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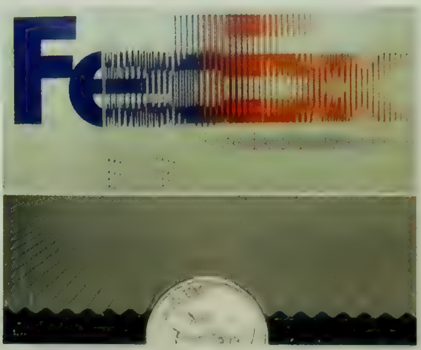

An open-and-shut casement

Kolbe's push-out casements and awnings were inspired by the classic simplicity of European windows. The oil-rubbed-finish lever handle (detail shown) operates a single-point lock. Inswing hinged screens or retractable screens are available as options to keep out insects. Kolbe Windows & Doors, Wausau, Wis. www.kolbe-kolbe.com **CIRCLE 253**

Clear coating

Viracon's Solarscreen VRE-59 insulating glass combines a crisp, neutral appearance with a light transmittance of 59 percent. The coating made its debut in New York City's new 7 World Trade Center building, delivering a crystal-like appearance while contributing to the overall energy requirements for the building's LEED-CS Gold designation. Viracon, Owatonna, Minn. www.viracon.com **CIRCLE 254**

3D glasses

Convex Glass is shaped so that dimensional viewing can take place from either side of it. The 3D glass can be safety tempered, and is available in clear, low-iron glass, as well as with cast textures and privacy coatings. Nathan Allan Glass Studios, Richmond, British Columbia. www.nathanallan.com **CIRCLE 255**

Traditional look

Weather Shield's Collection's line of all-wood windows and doors is built on a traditional chassis and includes heavy stiles and rails and other features to mimic historic windows. Weather Shield Windows & Doors, Medford, Wis. www.weathershield.com **CIRCLE 256**

Hinging on design

The Monti Hinge from Sadev Batiment is a novel approach to hinges for glass interior doors. The organic design of this single-action hinge is manufactured from solid stainless-steel investment casting. Custom Hardware Manufacturing, Keokuk, Iowa. www.chmi.com **CIRCLE 257**

Glass with a sense of motion

Piccolo was developed in response to architects' demands for greater design choices in structural-glass systems. The vertical fluting creates a gentle sense of motion and interesting degrees of obscurity. Available in tempered or annealed form. Bendheim Wall Systems, Passaic, N.J. www.bendheim.com **CIRCLE 258**

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Finishes

Plaster and gypsum board • Prefinished panels • Carpeting • Ceilings • Wood and resilient flooring • Acoustic insulation • Ceramic, metal, and wood tile • Wall coverings

Architect as artist

From a distance—say, installed on the facade of Media Market in Eindhowen, Belgium—a field of Sculpture tiles looks like shimmering rows of circuitry. Upon much closer inspection, one can almost imagine tiny waves of metallic-glazed porcelain flowing asymmetrically through each tile's seven channels. The Italian architect Massimiliano Fuksas designed the 10" x 16" tile for Cerdomus, which recommends using the product solely on vertical surfaces. Italian Trade Commission, Ceramic Tile Dept., New York City. www.cerdomus.com **CIRCLE 259**

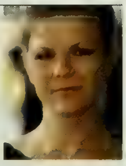
In the zone

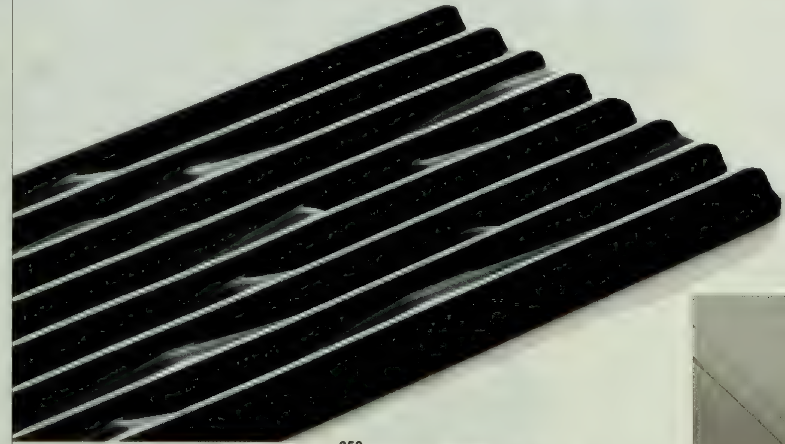
Armstrong's TechZone Ceiling System is the first acoustical ceiling system to organize lighting fixtures, air diffusers, and sprinkler heads to reduce clutter overhead. All technical services are housed in a linear 6"-wide "zone" that eliminates the need to penetrate ceiling panels and limits maintenance and potential panel damage to within the zone. The company partnered with lighting, diffuser, and sprinkler-connection manufacturers, including Lightolier, Lithonia Lighting, Neo-Ray/Cooper Lighting, Zumtobel Lighting, Carnes, and FlexHead Industries, to ensure the ceiling product's viability. Armstrong Ceilings, Lancaster, Pa. www.armstrong.com **CIRCLE 260**

Soft cell

Lama Concept presses and cuts industrial felt into strings, then randomly assembles the pieces to form Cell carpet. The multiple flanges are also interspersed with dots—or nuclei—of felt. Since launching the carpet in 2004, designers Yvonne Laurysen and Erik Mantel have introduced this latest version, which replaces several spots with otherworldly pinpricks of LED light. Lama Concept, Amsterdam. www.lamaconcept.nl **CIRCLE 261**

I like the organic "pebble" design of a metal tile in a typically geometric-metal-tile world. It's a sexy, unexpected interpretation of a natural stone. —**EILEEN RAGSDALE**





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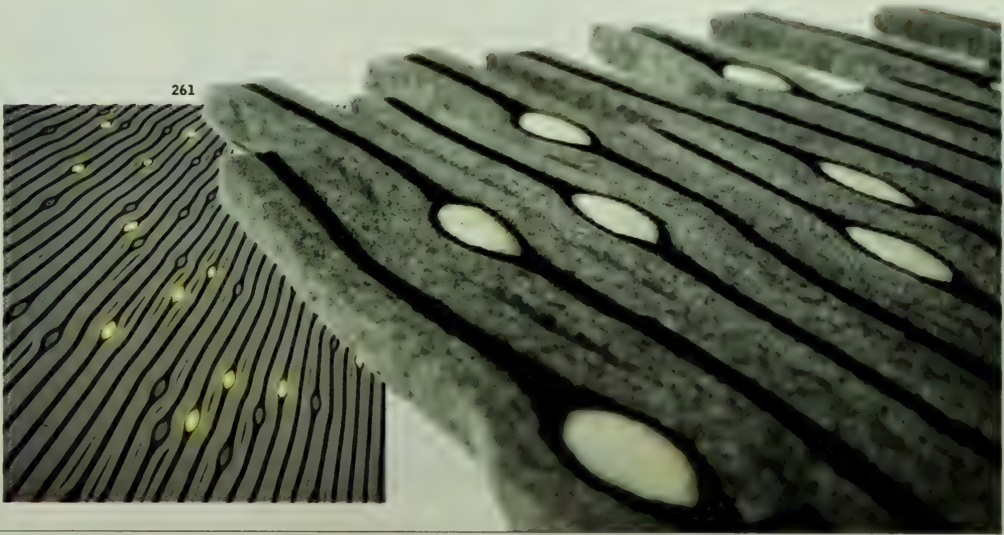

Finishes

Prefinished panels • Carpeting • Ceilings • Wood and resilient flooring • Acoustic insulation • Ceramic, metal, and wood tile • Wall coverings

Design that rocks

Soli's Metal Freeform Collection is reminiscent of a riverbed of pebbles, although individual porcelain-composite tiles are wrapped with stainless steel in mirror or hairline finishes. Soli, La Puente, Calif. www.solistone.com **CIRCLE 262**

Mosaics in flux

Flux Studios has searched far and wide to source reclaimed and sustainably harvested solid teak, bamboo, and rosewood for the Fortis Arbor Wood Mosaics line. The company has also gone to great cerebral lengths by developing a flexible grout that accommodates wood's natural expansion and contraction. Flux Studios, Chicago. www.fluxstudios.com **CIRCLE 263**

First pick for eco-teams

Derived from fast-growing, renewable bamboo, PlybooSport will install over most existing athletic-floor systems and requires less sanding and labor than alternatives. Smith & Fong, San Francisco. www.plyboo.com **CIRCLE 264**

In her shoes

The rich, mottled surface of Spinneybeck Recycled Leather wall covering comprises vegetable-tanned scrap leather from the shoe industry and qualifies as both a 100 percent postindustrial and 100 percent postconsumer recyclable product. Spinneybeck, Getzille, N.Y. www.spinneybeck.com **CIRCLE 265**

Top of the pops

Not your father's wood paneling, POP plywood panels are press-formed into subtle geometric shapes that assemble into a warm, Modern surface. The light birch, cherry, walnut, and cork panels include a concealed aluminum attachment system, and each panel is coated with a transparent film to ease cleaning. Hightower Group, Bellingham, Wash. www.hightoweraccess.com **CIRCLE 266**

Screen gems

Erwin Hauer is renowned for bas-relief and perforated partitions whose stylized grids and biomorphic shapes engage with light and shadow as well as tactility, seeming as relevant today as when they were first sculpted in the 1950s. Now, using digital technology, Hauer is offering three reissues, plus the new Design 212. Erwin Hauer Studios, New Haven. www.erwinhauerstudios.com **CIRCLE 267**

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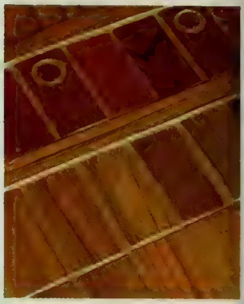

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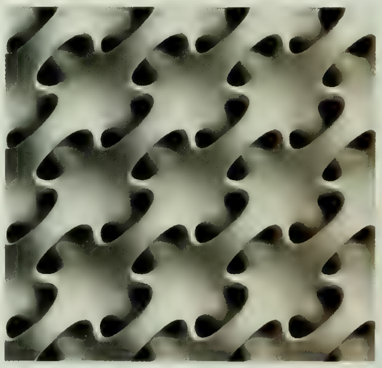

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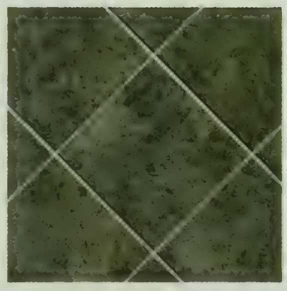

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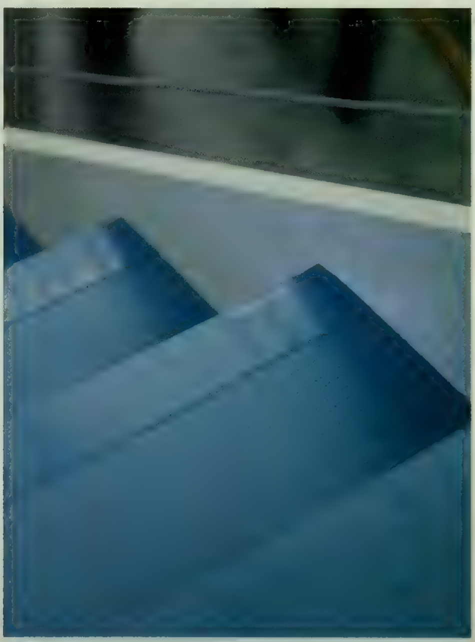

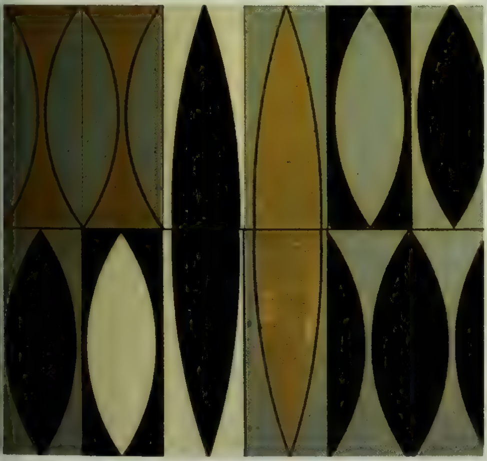
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A clean slate

Painterly dots of color speckle one tile, veining runs through another. Inspired by natural slate, Marazzi's Vesale Stone series deploys asynchronous glaze applications to recreate the stone's many patterns—although these glazed porcelain tiles are flat, slip-resistant, and easy to clean. Marazzi, Sunnyvale, Tex. www.marazzitile.com **CIRCLE 268**

Touchy feely

Ecotextures interlocking architectural panels are as pleasurable to the senses as they are easy on the conscience: The product is oriented strand board made from rapidly renewable timber. Architectural Systems, New York City. www.archsystems.com **CIRCLE 269**

Mixed media

For Papyra, the celebrated designer Ulf Moritz combines crinkly strands of paper and pure wool, resulting in a festive carpet that is confettilike in its appearance, but which remains soft to the touch. Danskina, Amsterdam. www.danskina.nl **CIRCLE 270**

Born again

Crossville's EcoCycle Series of tiles have that fresh-from-the-quarry look, with a terrestrial color palette and the variety of markings associated with natural stone. But EcoCycle is anything but virgin material. Rather, these porcelain tiles are certified by Scientific Certification Systems as having 40 percent recycled content, giving old ceramic material a second chance. Crossville, Crossville, Tenn. www.crossvilleinc.com **CIRCLE 271**

Stairway to style

Combining safety and aesthetics, Johnsonite has introduced two new rubber stair treads with memorable colors and textures, including the organic lines of Bamboo (shown) and the lineal squares of Cubis. Johnsonite, Chagrin Falls, Ohio. www.johnsonite.com **CIRCLE 272**

Casing the joint

With its two-tone surfboard design, the Case Study Collection of ceramic tiles would be perfectly suited to that Lautner-inspired house perched in the Hollywood Hills. Each tile is 34 percent recycled waste collected within 350 miles of the manufacturing plant. Kibak Tile, Sisters, Ore. www.thetilecounsel.com **CIRCLE 273**

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Finishes Plaster and gypsum board • Acoustic insulation

Tiptoes not required

EasyMat weighs as much as 25 times less than the cement backerboard used for setting tile or stone, and considerably reduces impact sounds. Custom Building Products, Seal Beach, Calif. www.custombuildingproducts.com **CIRCLE 274**

Oh so quiet

QuietRock 525's sound-absorbing drywall fabrication is also 1-hour fire-rated. Quiet Solution, Sunnyvale, Calif. www.quietsolution.com **CIRCLE 275**

The sound of silence

One would have to sandwich eight layers of standard drywall to approximate the silencing ability of the Sound-Engineered Drywall from Supress Products. Supress Products, San Rafael, Calif. www.supressproducts.com **CIRCLE 276**

Clear the air

Sheetrock Brand Lightweight All Purpose Joint Compound PLUS 3 reduces air-borne sanding dust with a formula that binds fine residue during sanding, making particles fall to the floor. USG, Chicago. www.usg.com **CIRCLE 277**

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Specialties & Equipment

xterior grilles and screens • Kitchen hoods and ventilation •
esidential appliances • Signage

echy cooktops

hermador's induction cooktops in 36", 0", and 15" glass ceramic models, use lectromagnetic technology to focus eat on the pan, leaving the surrounding urface cool to the touch. Featuring 7 power levels—the widest range vailable—the induction-cooking surface's owerBoost function can concentrate ower in a specific zone for rapid eating time. Also from Thermador's arent company BSH is Bosch ceramic lectric cooktops (not shown), offering recisionSim technology for a wide ange of simmering options and owerBoil for quick boiling with 100 ercent of wattage. BSH Home ppliances, Huntington Beach, Calif. ww.thermador.com, ww.boschappliances.com **CIRCLE 278**

oga for your kitchen

he Om mini is a 21"-square vent hood r small kitchen spaces. Designed by orenzo Lispi for Zephyr's Elica Collection, e reverse-silk-screened glass square ouses a 450 cfm blower, which draws ir in through the boundary of the central ircle. The ductless venting system with arbon filters as well as adjustable halo- en backlighting can be operated from backlit touch-screen interface or by emote control. Zephyr, San Francisco. ww.zephyronline.com **CIRCLE 279**

elease tension

ambridge Architectural's Velocity attach- ent hardware for mesh systems is pecialized for hurricane-prone coastal reas. Velocity attaches a mesh system a surface and is engineered with a ension-release mechanism that operates utomatically in high wind conditions up 176 mph. The installation then re- ensions the mesh when winds subside. ambridge also manufactures a ariety of open metal-fabric patterns hat can be applied with Velocity ttachment hardware. Cambridge rchitectural, Cambridge, Md. www. ambridgearchitectural.com **CIRCLE 280**

Permalight photoluminescent safety signs are an excellent life safety system. —*HERBERT MARTIN LYNN, AIA*

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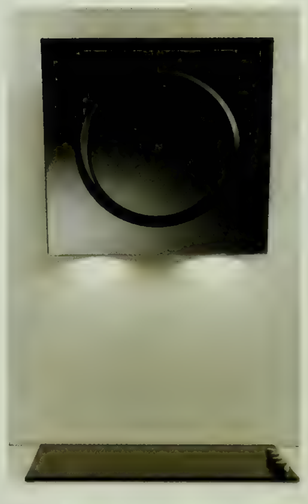

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Specialties & Equipment

Exterior grilles and screens • Kitchen hoods and ventilation • Residential appliances • Signage

Wine with dinner

The Liebherr SBS 2415 (custom finish) and SBS 245 (stainless) 48" side-by-side refrigerator-freezer-wine combination is Energy Star qualified and features five climate zones including two zones for wine storage. SuperCool and SuperFrost functions offer swift chilling. Liebherr, Burlington, Ontario. www.liebherr-appliances.com **CIRCLE 281**

High-efficiency ventilation

The Halton Capture-Jet is a vent hood system that creates a push-pull effect capturing and extracting grease-laden particulates at exhaust flow levels up to 30 percent lower than conventional systems. Halton Company, Scottsville, Ky. www.haltoncompany.com **CIRCLE 282**

Nonelectrical safety signs

Permalight photoluminescent safety signs absorb ambient lighting, such as fluorescent light, and produce a bright yellow light in darkness with no electricity. The nontoxic signs come as individual components that can be arranged on-site. American Permalight, Torrance, Calif. www.americanpermalight.com **CIRCLE 283**

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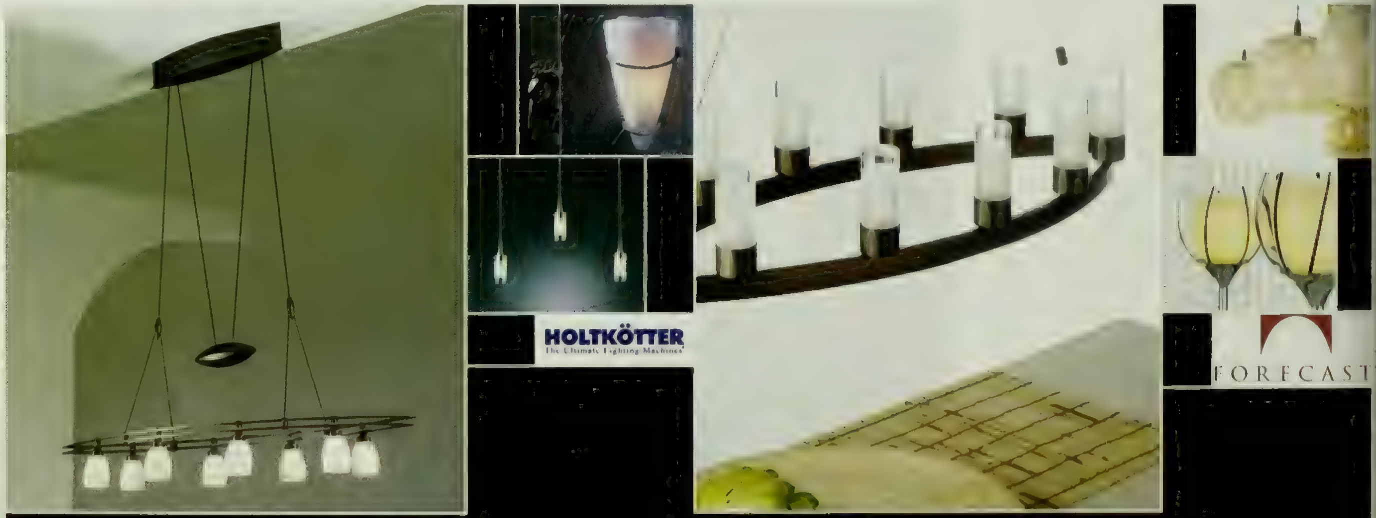

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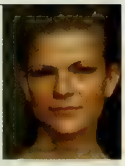
Furnishings

Curtains and drapes • Countertops • Office accessories • Office furniture • Seating • Systems furniture • Fabric treatments • Bicycle racks • Site furnishings

> **I like that [Wellspring by Landscape Forms] is designed for a specific market and encourages time outdoors. The engineering and sustainable wood are a plus.** —*EILEEN RAGSDALE*



Shadow boxing

Venturing into furniture design, Steven Holl continues his investigation of porosity with his new seating and tables for Horm. The sculptural pieces explore the passage of light through matter by using ultrathin, laser-cut wood. The lightweight but sturdy veneer is composed of a sandwich of wood and synthetic materials that eliminates the need for hinges at the various panel folds. The limited-edition pieces are not currently available in the U.S. Horm, Pordenone, Italy. www.horm.it **CIRCLE 284**

A better bike rack

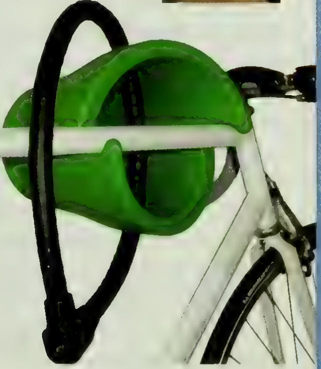
Created for the urban cyclist with limited storage space, Cycloc affixes to the wall for a stylish and convenient bike perch. The crossbar easily rests within the grooves, which can be rotated to accommodate a wide range of traditional frame shapes, ensuring the bike remains horizontal. Cycloc is available in four colors and in a 100 percent recycled plastic version. Cycloc, London. www.cycloc.com **CIRCLE 285**

Patinated paper

Constructed entirely from unbleached craft paper that has been made fire-retardant, Softseating is a collection of surprisingly strong and durable stools, benches, low tables, and loungers whose flexible honeycomb structure can be compressed like a book for storage. Similar size pieces can be joined in series to create larger and unusual shaped seating topographies. As Softseats are used, the surface crushes down to create a textured patina. Molo Design, Vancouver. www.molodesign.com **CIRCLE 286**

A whale of a tail

Despite its whimsical gesture, Flukes is a stable seat, sculpture, or table base. Entirely handmade and cast from a polished concrete material with a urethane rubber base, Flukes can be used indoors or outdoors. Meld, Raleigh, N.C. www.meldusa.com **CIRCLE 287**



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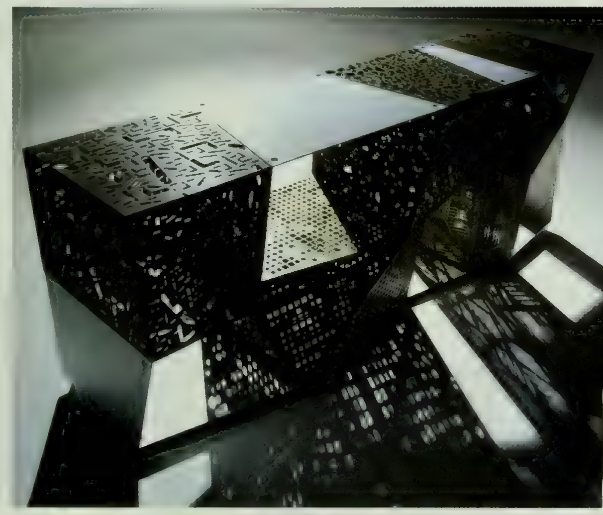

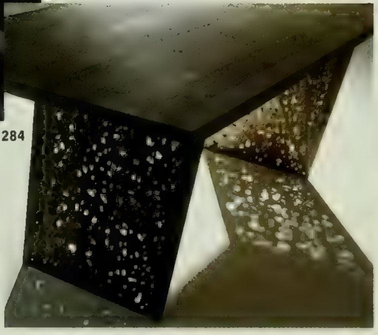

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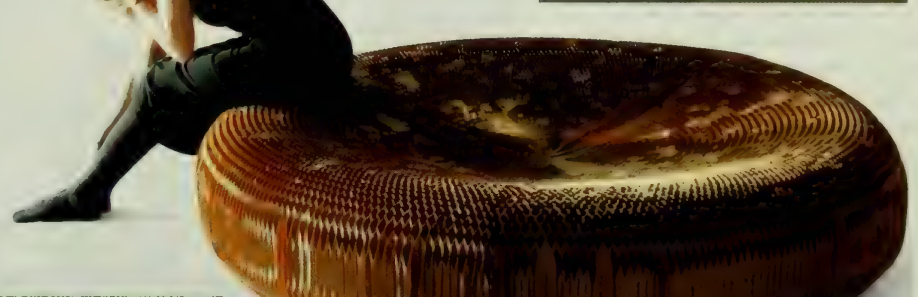

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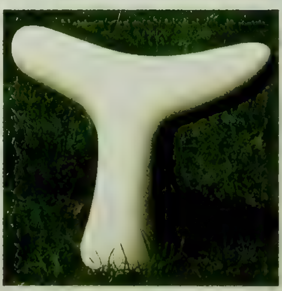

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Furnishings

Curtains and drapes • Countertops • Office accessories • Office furniture • Seating • Systems furniture • Fabric treatments • Bicycle racks • Site furnishings

Floral arrangement

Designed by Patricia Urquiola, Antibodi is a lounge chair whose cover, fixed to a painted or chrome-plated metal frame, is created from triangular-shaped petals sewn together in combinations of felt, wool, and leather. The petals can either face down for a quilted look, or up for an unconventional version. Moroso, Milan. www.moroso.it **CIRCLE 288**

Food for fabric

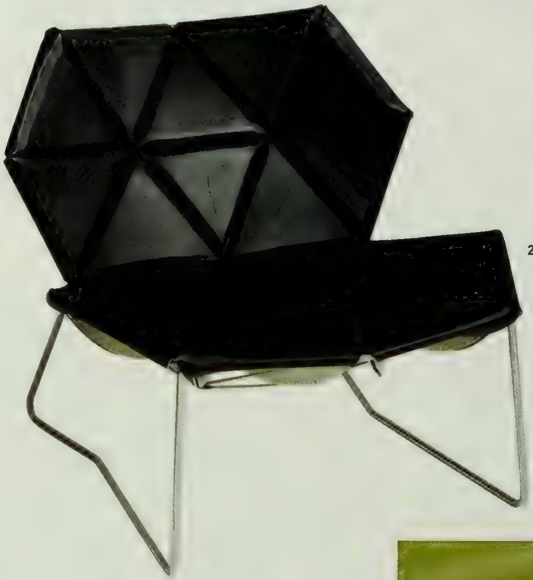
Drawing from the most unlikely of sources, Designtex introduced several new fabric lines with sustainability in mind. Ingeo Drapery (right) is composed of a man-made fiber derived from corn kernels. The natural origins of the polymer fiber allow it to be safely biodegradable at the end of its useful life. It is available in three shimmering styles and numerous color ways. Sustainable Home (left) is Designtex's new collection of soft, breathable residential fabrics made from renewable materials such as bamboo and organic cotton. Available in four patterns, the fabric's toxin-free fibers are naturally antibacterial. Designtex, New York City. www.designtex.com **CIRCLE 289**

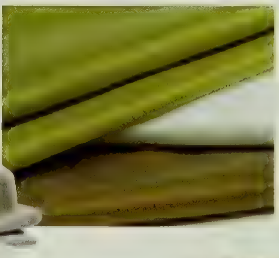
Tropical flavor

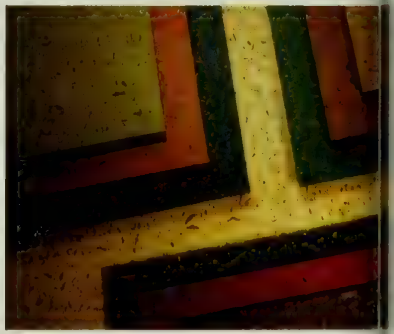
Abacá decorative laminate surface is manufactured using recycled banana fibers and kraft paper and contains approximately 40 percent postindustrial recovered content. Suitable for both horizontal and vertical applications, the line comes in 10 natural hues in 4' x 10' sheets, and a standard thickness of .048". Lamin-Art, Schaumburg, Ill. www.laminart.com **CIRCLE 290**

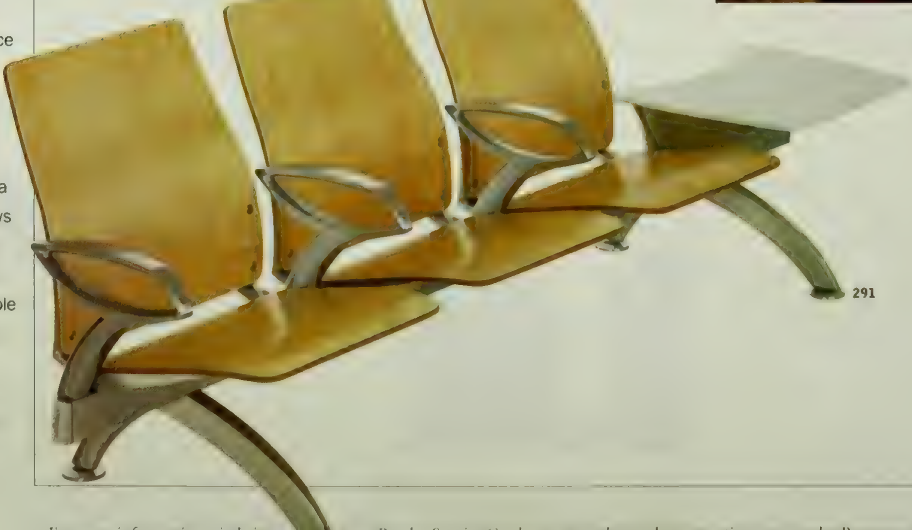
Powered up passengers

Arconas launched two high-performance public seating lines. Bernù Aero (shown) comes in two-to-five-seat linear or curved beam units, with tables, and loop or cantilever arms. The Flyaway line for airport waiting areas features a "Cluster" workstation layout that allows up to six people direct access to a reliable power source to recharge laptops and other electronics from a comfortable seated position with optional footrests. Both collections are constructed of solid, die-cast aluminum components, and are available with fully upholstered seats and backs. Arconas, Ontario. www.arconas.com **CIRCLE 291**









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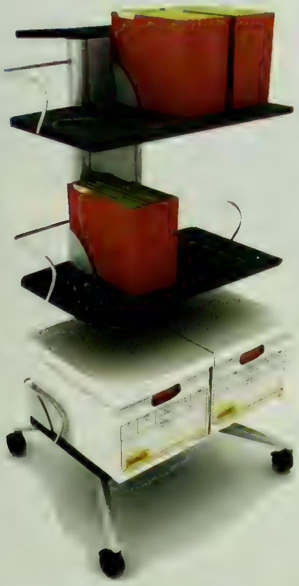
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Well-edited furniture collection
Suzanne Trocmé's 18-piece collection for Bernhardt Design is an elegant grouping of sofas and lounge pieces, side chairs, occasional tables, and benches. The Egalité bench (shown) features a seat cushion with a "V" cut in the center, allowing a shadow gap to provide an invisible border. Bernhardt Design, Lenoir, N.C. www.bernhardtdesign.com **CIRCLE 292**

Soothing surroundings
The Enso Collection of health-care cubicle curtains was created using 100 percent Eco Intelligent polyester that is produced, dyed, and recycled using all environmentally safe ingredients and processes. The four patterns feature a neutral-based palette inspired by nature and Japanese motifs. Momentum Textiles, Irvine, Calif. www.themomgroup.com **CIRCLE 293**

Spline curves
Initially designed by Norway Says for the National Museum of Art, Architecture, and Design in Oslo, Spline is a simple stacking chair composed of a series of narrow metal rods treated with a white rubber surface. For use indoors or out. Offecct, Tibro, Sweden. www.offecct.se **CIRCLE 294**

Friendly file clerk
Clerk is a durable mobile cart designed to efficiently transport and neatly hold boxes and project files while keeping them visible and easy to access. When not in use, the shelves can be flipped up and several carts can nest together for compact storage. Allsteel, Muscatine, Iowa. www.allsteeloffice.com **CIRCLE 295**

X-treme performance
The x-Stack chair is made of glass-filled nylon and flexible thermoplastic urethane found in sports equipment. X-stack caters to classroom, meeting, or dining-room applications, with an optional right- or left-handed table and an ambidextrous monopod for laptop use. Vecta, Grand Prairie, Tex. www.vecta.com **CIRCLE 296**

Silver savior
Adopting AgION Technologies' silver-based antimicrobial compound for use in its synthetic fabrics, Sommers Plastic Products introduced AgUARDIAN, a line of bacteria-resistant upholstery and wall coverings. The product will be distributed to the trade by CF Stinson. CF Stinson, Rochester Hills, Mich. www.cfstinson.com **CIRCLE 297**

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Furnishings

Curtains and drapes • Countertops • Office accessories • Office furniture • Seating • Systems furniture • Fabric treatments • Bicycle racks • Site furnishings

A healthy office environment

Patterns is a flexible office furniture collection that includes workstations, studio tables, benches, and file storage. A typical Patterns installation is Greenguard certified as a low-emitting furnishing, contains 78 percent recycled content, and can help achieve LEED-CI credits. Haworth, Holland, Mich. www.haworth.com **CIRCLE 298**

Bamboo plywood

Not limited to countertops, Smith & Fong Plyboo's End-grain Block is made from 100 percent rapidly renewable bamboo, and uses strong, emissions-free adhesives. Available in a natural or amber tone. Robin Reigi Inc., New York City. www.robin-reigi.com **CIRCLE 299**

Monitoring your support

Ellipta is a flat screen monitor support system with a spring-tensioned arm for easy movement and rotation. The stainless-steel construction accommodates monitor weights up to 16 pounds. Ellipta can be configured to allow two monitors to be mounted from the same arm for multiscreen use. Hafele America, Archdale, N.C. www.hafele.com **CIRCLE 300**

A forest of tables

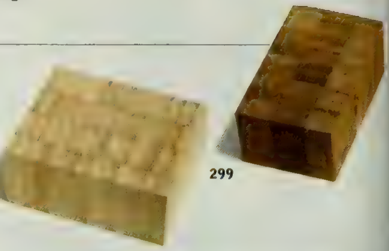
Designed by Norman Diekman, Trees is a collection of sculptural tables in a variety of finishes that include metal, Sensitile terrazzo, recycled and embossed wood, and high-gloss paint. Common tilting edges invite pairing one form with another. Brayton International, High Point, N.C. www.brayton.com **CIRCLE 301**

Pliable laminate material

Ply is a "pliable laminate" material for interior applications designed by Milan-based Luisa Cevese. The PVC-free polyurethane product is based on a proprietary process Cevese developed to embed textile remnants in a soft, translucent polyurethane. Maharam, New York City. www.maharam.com **CIRCLE 302**

Haute hammock

With Loom, Franco Poli's new design for Matteo Grassi, a 2D surface takes on a 3D ergonomic shape thanks to a carefully cut pattern of openings. The thick coach hide is incised using a high-frequency machine, giving the leather elasticity, breathability, and transparency. Matteo Grassi, Milan. www.matteograssi.it **CIRCLE 303**



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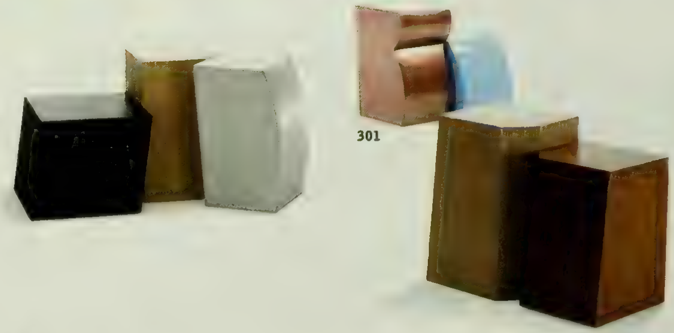

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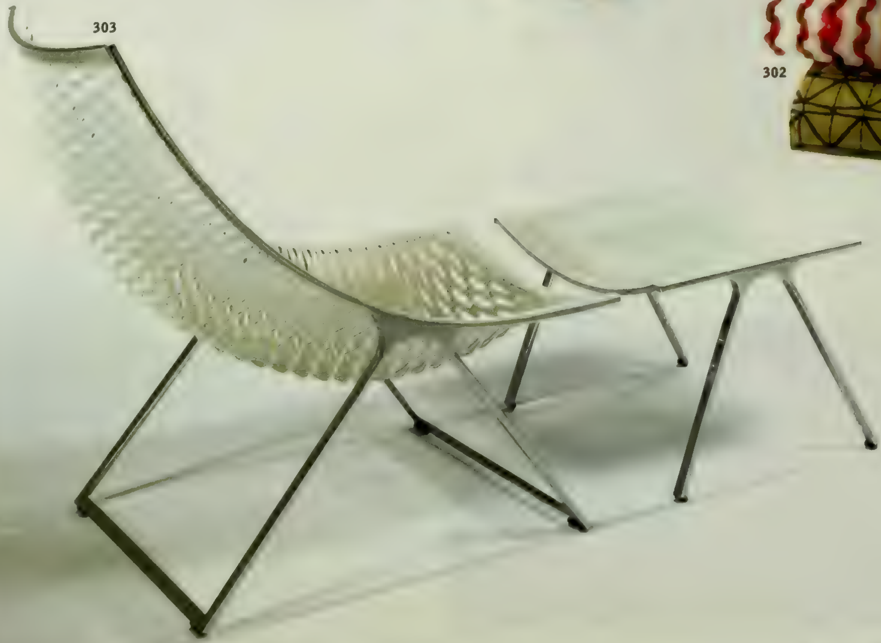

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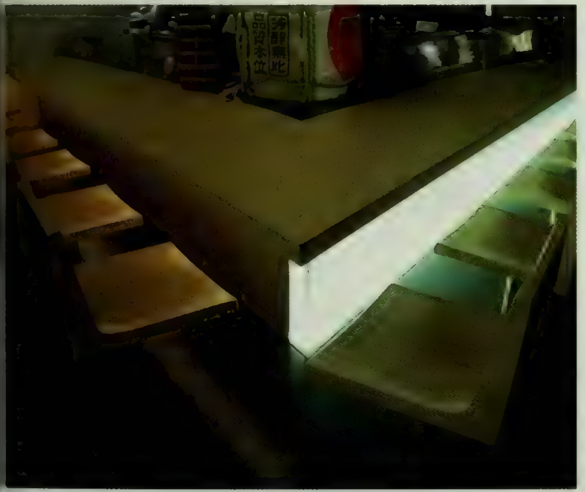

Morimoto Restaurant, New York - Project **Tadao Ando**
Custom products - Design **Ross Lovegrove**

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Furnishings

Curtains and drapes • Countertops • Office accessories • Office furniture • Seating • Systems furniture • Fabric treatments • Bicycle racks • Site furnishings

Serpentine seating

Newly produced by Davis for the North American market under license from its original manufacturer, Shin and Tomoko Azumi's ZA bench design has fresh appeal to a wider audience. The bent plywood component pieces are available in one or two seat straight units, and a curved unit for countless wave form or circular configurations. Davis Furniture Industries, High Point, N.C. www.davisfurniture.com **CIRCLE 304**

Nature's bounty

PIE is a line of handcrafted furniture made from underutilized natural materials. The Spoon Lounge (top) follows a body's curves. Its thin steel frame is woven with Liana, a rapidly growing Asian vine that is typically cut down and burned. The form of the Sushi Daybed (bottom) was inspired by the traditional art of making sushi. Its wood-and-rattan frame has a handwoven water hyacinth skin. PIE, Miramar, Fla. www.projectimportexport.com **CIRCLE 305**

User-friendly furniture

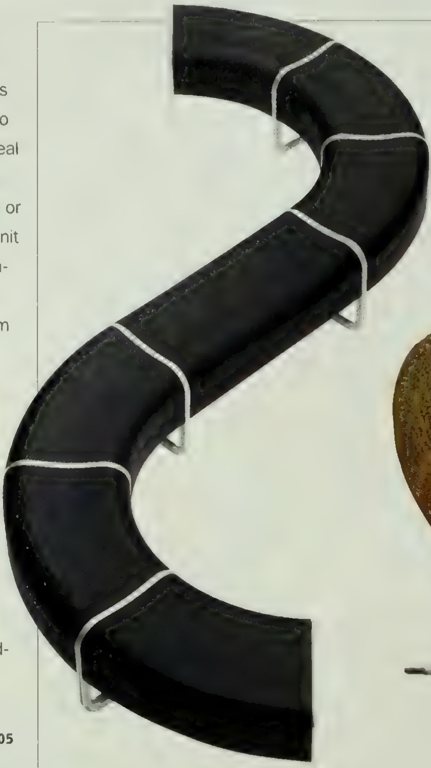
Wellspring is a collection of teakwood garden and courtyard furniture that includes a chair, bench, rocker, table, and sunshade. The collection offers ease of use for people with diminished strength and flexibility while remaining visually appealing and comfortable for all users. Landscape Forms, Kalamazoo, Mich. www.landscapeforms.com **CIRCLE 306**

Architect-designed lines

Appoggi has introduced a series of affordably priced chairs, bar stools, ottomans, and tables designed by architectural firms, including Michael Graves & Associates, Gluckman Mayner Architects, and Arquitectonica. The Rockwell Group's Uni-Form chair and ottoman (top) and SHoP Architects' Slice Collection club chair (bottom) are shown. Appoggi, Bedford, Mass. www.appoggi.com **CIRCLE 307**

Hard as paper

Shetkastone is made from 100 percent pre- and postconsumer wastepaper and formed into a hardened product for use as table- or countertops. All by-products can be recycled back into the manufacturing process. Shetkastone can be finished with any wood or stone sealant. All Paper Recycling, LeCenter, Minn. www.shetkastone.com **CIRCLE 308**



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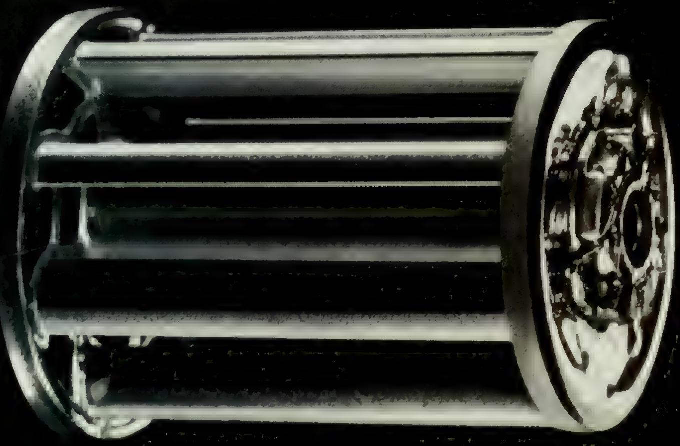

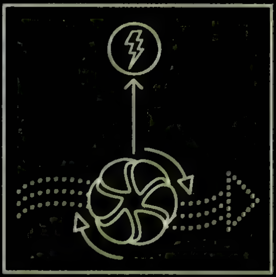

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Plumbing

Residential plumbing fixtures • Commercial plumbing fixtures

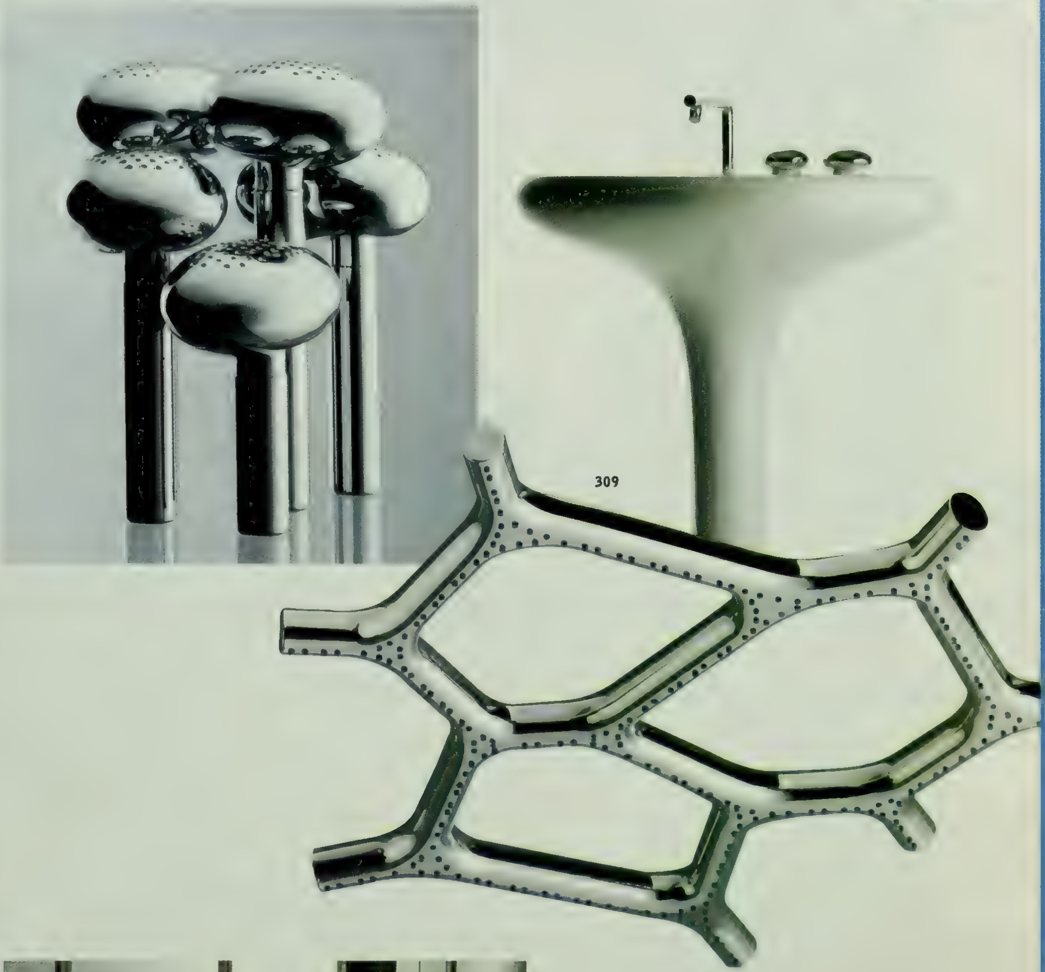
Bath essentials

Ross Lovegrove's Istanbul Collection of bathroom fittings for Turkish ceramic company VitrA was inspired by the concept of "organic essentialism": Showerheads resemble growing crystals (bottom right) or mushrooms (near right), faucets sprout like branches, and levers are pebble-shaped (both shown on pedestal sink, far right). The line includes 175 products, including plumbing fixtures, wall and floor tiles, bathtubs, shower trays, bathroom furniture, faucets, and accessories. The soft-close toilet and bidet lids come in a translucent option with motion-activated LED lighting. VitrA, Suwanee, Ga. www.vitra-usa.com **CIRCLE 309**

Seamless tub

Designed by Naoto Fukasawa, the Terra bath tub is made of Cristal Plant solid surfacing. Terra is made without jointing points—the basin is molded and integrated into the entire volume of the bath tub. A lateral water supply gives a waterfall experience to the bather. Boffi, New York City. www.boffi.com **CIRCLE 310**

> **The fact that product designers are exploring different applications of burgeoning LED technology is timely and should be encouraged.** —*BRIAN M. SLOCUM, AIA*



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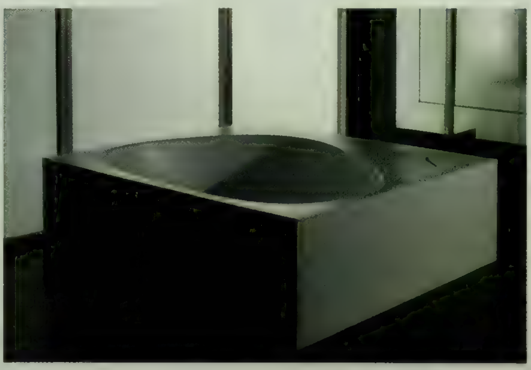

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Plumbing

Residential plumbing fixtures • Commercial plumbing fixtures

In the spotlight

Bringing illumination to the sink area, Eve integrates energy-saving LEDs into a transparent plastic ring within a pull-out faucet that unexpectedly emerges from a slender swivel spout. Pushing a concealed button illuminates the light band, which turns off automatically after 45 minutes. KWC America, Norcross, Ga. www.kwcamerica.com **CIRCLE 311**

Sexy sink, flashy flushing

Duravit and Sieger Design have collaborated again with the Happy D toilet, the latest offering to the Happy D collection of bathroom fittings. The "D"-shaped toilet includes an overlapping, soft-closing toilet seat and offers low water consumption at 1.6 gallons per flush. A washbasin from the 2nd Floor collection, also designed by Sieger Design, features a "brushed stainless steel" glaze in addition to classic white ceramic. According to the manufacturer, the glaze is tougher than stainless steel and is easy to maintain. Duravit, Duluth, Ga. www.duravit.com **CIRCLE 312**

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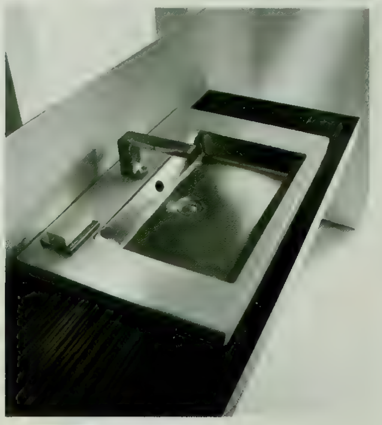

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HVAC

Ice storage • Air distribution • HVAC fans • Air-cleaning devices

Breathe easier

Trane CleanEffects air-cleaning system removes up to 99.98 percent of airborne particles down to .3 microns in size from the entire airstream. The system's design creates a number of strong electrical fields that charge airborne particles, which then enter the patented collection field, which has eight times the collection surface of conventional electronic air cleaners. Trane, Tyler, Tex. www.trane.com **CIRCLE 313**

One cool customer

IceBank Cool Storage tanks store ice at night that is used to cool buildings the next day. Cooling at night with cheaper off-peak electricity reduces operating costs 10 to 20 percent, conserves resources, and lowers emissions, as nighttime electricity is more efficiently generated and delivered. Calmac Manufacturing, Fair Lawn, N.J. www.calmac.com **CIRCLE 314**

Self-cleaning diffuser

Available in a range of colors, the LTG linear diffuser system sends out an additional small air curtain along the ceiling, keeping that area around the diffusers clean. The general air pattern of the diffuser can be adjusted at any time. LTG, Spartanburg, S.C. ww.ltg-inc.net **CIRCLE 315**

Fans of ventilation

The jury selected two products from the ventilation experts at Broan-NuTone. The Ultra Silent humidity sensing fan (left) features Sensaire technology, which senses increases in moisture at the ceiling and automatically exhausts the moisture, turning off once the room's normal humidity level is reached. All fans in the SmartSense Intelligent Ventilation system (right) communicate with the "master switch" in the home, which intermittently turns fans on and off to achieve optimal ventilation. Broan-NuTone, Hartford, Wis. www.broan.com **CIRCLE 316**

> **Trane CleanEffects is a well-designed in-line filtration system for a home central HVAC system. The compact, multilayer filter is a nice feature to improve indoor air quality.** —*BRIAN STACY*

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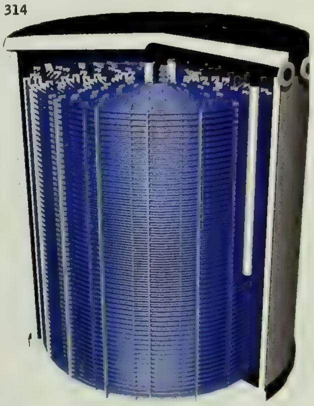

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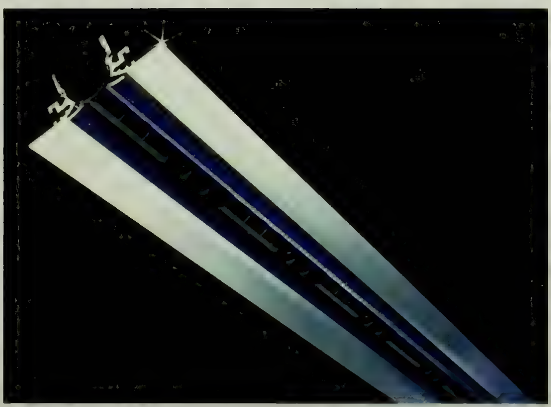

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Electrical & Communications

Interior lighting fixtures, lamps, and ballasts • Exterior lighting • Lighting control devices • Data communications software

A soft puddle of light

Volcano, designed by London-based David Morgan Associates, is made with a vacuum-formed clear polycarbonate shade. Light emanates from the center of the 1½'-high floor light, striking the reflector and spreading along the bottom portion of the luminaire. Louis Poulsen Lighting, Ft. Lauderdale, Fla. www.louispoulsen.com **CIRCLE 317**

'60s comeback

Part of Leucos's Historic Collection of reissued lamps from the 1960s and '70s, the Aella table lamp by Renato Toso is constructed of handblown Murano glass complete with a clear crystal glass diffuser and a polished chrome base. Leucos USA, Edison, N.J. www.leucos.com **CIRCLE 318**

A softer side of control

The Tufted Architect Series Dimmer incorporates a tufted sensor into International Fashion Machines' electronic textile lighting-control line. There are no hidden buttons or switches—electronic yarns and materials are woven directly into the textile, turning the tufted area into a sensor. International Fashion Machines, Seattle. www.ifmachines.com **CIRCLE 319**

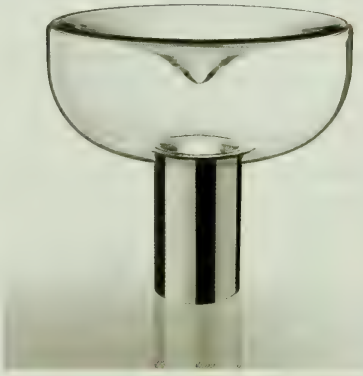
A task light with personality

The Leaf LED task light, designed by Yves Béhar, features a thin profile derived from a vertical blade that extends and swivels up to 180 degrees while supporting a matching horizontal blade that can be folded closed for ambient light. An iPod-like control on the base manages both the light intensity and warmth of the LEDs at the stroke of a finger. Herman Miller, Zeeland, Mich. www.hmleaf.com **CIRCLE 320**

Breaking the mold

Described as "breaking the geometric form barrier" by one juror, the Oblivion pendant, designed by Arne Quinze for Dark, has a white body but can change color through the use of a filter. Litecontrol, Hanson, Mass. www.litecontrol.com **CIRCLE 321**

> **The Volcano fixture extends beyond the generic landscape bollard's bulky look. It is elegant, playful, and delivers a soft glow that seems to be Dark Sky–friendly.** ***—PEI-HENG TSAI***



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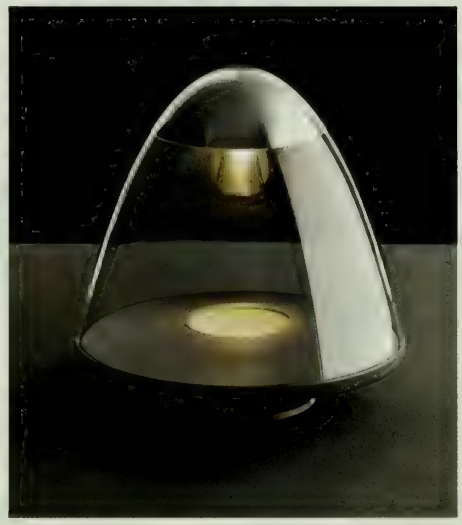

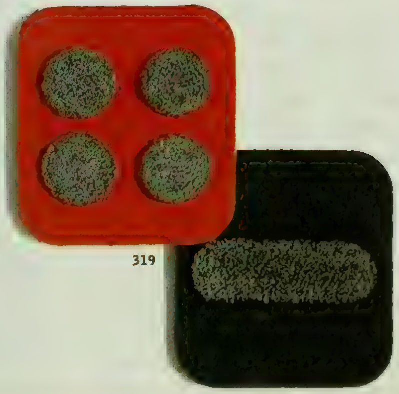

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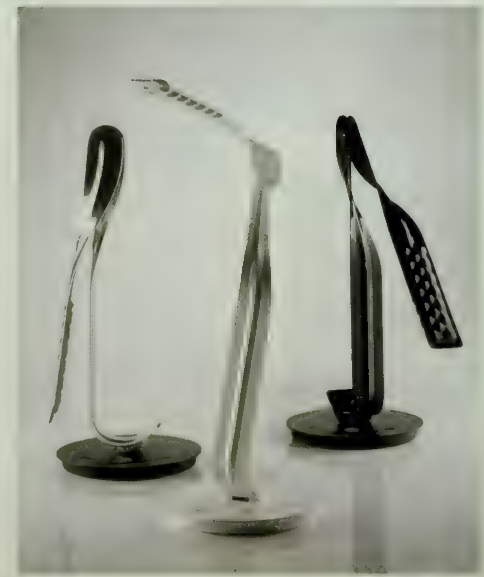

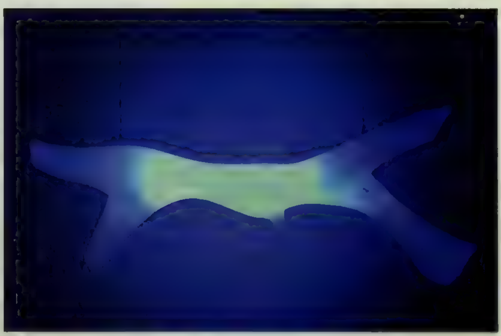

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Electrical & Communications

Interior lighting fixtures, lamps, and ballasts • Exterior lighting • Lighting control devices • Data communications software

Powerful yet graceful

Noted by the jury for it's "clean, graceful form," the LumeLex track-based solid-state lighting fixture integrates controls for both color temperature and dimming. Its 35-watt, 1,000-lumen light output is comparable to a 75-watt PAR lamp. Lighting Services Inc., Stony Point, N.Y. www.lightingservicesinc.com **CIRCLE 322**

Night lighter

Up to three purpose-specific lighting modules may be integrated into a single Night Elements column, resulting in fewer individual fixtures, lower energy consumption, and reduced installation costs. HessAmerica, Gaffney, S.C. www.hessamerica.com **CIRCLE 323**

Shallow, in a good way

The ultra-flat SMD LED semiconductor diodes are cool to the touch and offer a low installation depth. A patented ultra-thin plate in a special alloy cools the SMD LED illuminant, which can operate for up to 50,000 hours. Nimbus, Stuttgart. www.nimbus-design.com **CIRCLE 324**

Sleight of hand

Intended either to virtually disappear or stand out like artwork, the Anigmo Touchless Dimmer eliminates all visible controls. A patented proximity sensor detects the user's hand through most materials up to ¾" thick. Anigmo, New York City. www.anigmo.com **CIRCLE 325**

Smarter connections

Acrobat Connect Professional offers a real-time collaboration development environment where users can instantly share computer screens with distant colleagues with integrated video- and audio-conferencing. Adobe Systems, San Jose, Calif. www.adobe.com **CIRCLE 326**

To illuminate but not be seen

Selected for its minimal scale and simple form, the Nalu landscape fixture offers halogen or LED illumination that has an ecofriendly Dark Sky cutoff. Dreamscape Lighting, Los Angeles. www.dreamscapelighting.com **CIRCLE 327**

Base improvement

While the pin-based socket option has been in the industry for years, TCP has now chosen to use it exclusively for energy-efficient compact fluorescent lamps. TCP, Aurora, Ohio. www.tcpi.com **CIRCLE 328**

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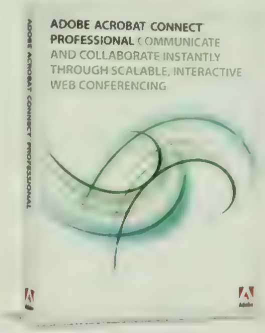

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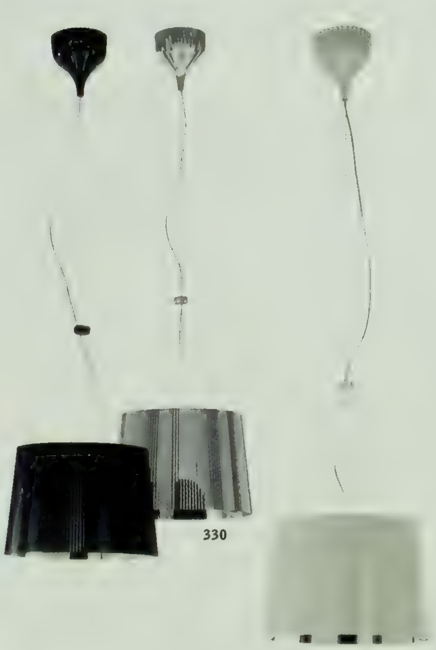
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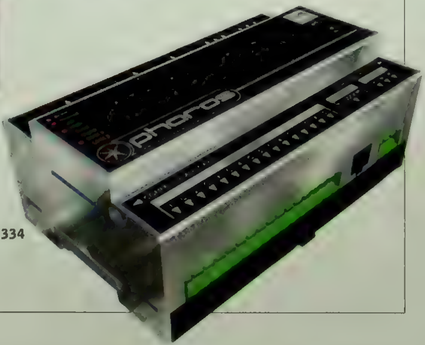

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Desk lamp on a diet

The Z-Bar LED desk lamp integrates 66 white LEDs into an ultra-thin body. A 47" reach helps the user easily adjust the lighting angle to eliminate shadows and reflected glare. Koncept Technologies, Monterey Park, Calif. www.konceptech.com **CIRCLE 329**

Reflection of elegance

Noted for its "interesting optical effect," the Gé pendant is made of polycarbonate in clear transparent, colored transparent, or solid black or white. A 14"-wide lampshade with a plissé worked surface creates dramatic reflections. Kartell US, New York City. www.kartellus.com **CIRCLE 330**

Adding a bit of drama

The Exterior 1200 features a powerful 1,200-watt lamp and a full range mixing system that achieves a full spectrum of programmable colors that can illuminate tall structures or high-visibility architecture. Martin Architectural, Sunrise, Fla. www.martin-architectural.com **CIRCLE 331**

Beams of light

The rectangular Linear Lighting Elements line of fixtures use T5 HO lamps and a precision louver and linear spread lens to shield the lamp and provide wide-spread illumination of interior and exterior spaces. Bega/US, Carpinteria, Calif. www.bega-us.com **CIRCLE 332**

Flexible skylight

Designed to emulate natural light, Sky can be surface-mounted, recessed to walls or ceilings, or suspended as a pendant. Sky uses a combination of fluorescent lamping to evenly illuminate the stretch-fabric diffuser. inter-lux, Columbia, Md. www.inter-lux.com **CIRCLE 333**

Compact lighting control

The Pharos Lighting Playback Controller offers ultra-compact control for entertainment and LED lighting in architectural settings. It supports DMX or Dali color-mixing fixtures, dimmable ballasts, and automated luminaires. ETC, Middleton, Wis. www.etcconnect.com **CIRCLE 334**

For more information, circle item numbers on Reader Service Card or go to archrecord.construction.com, under Resources, then Reader Service.

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r enhanced energy efficiency.
uo-Gard Industries, Canton, Mich.
ww.duo-gard.com **CIRCLE 335**

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ompletely immerses the body in music,
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peaker that is amplified and enhanced
y water. Neptune, Quebec.
ww.neptuneb.com **CIRCLE 336**

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esigned to reduce noise while main-
aining maximum light transparency.
orrugated on both sides, the post/panel
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nounted in steel frames providing flexi-
lity for building freestanding structures
nd wall-height extensions. Quilite,
os Angeles. www.quilite.com **CIRCLE 337**

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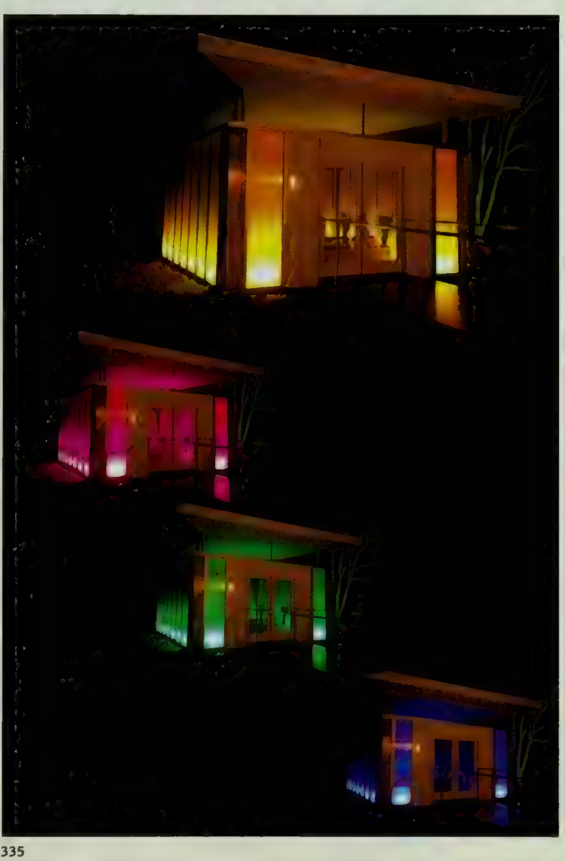

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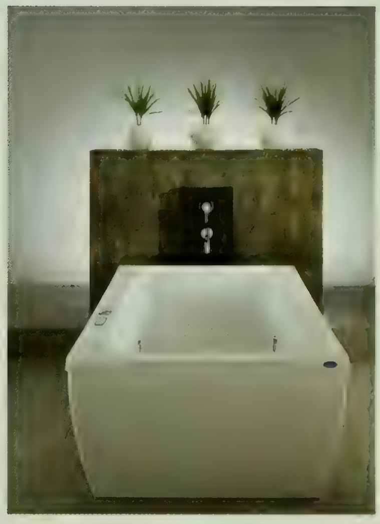

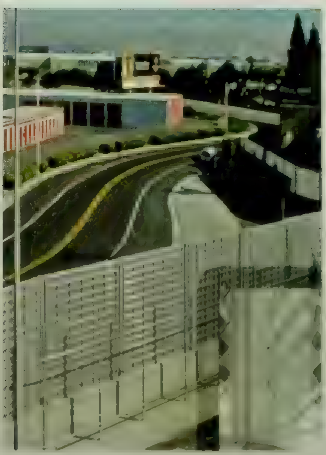

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Dates & Events

New and Upcoming Exhibitions

Constructing the Swiss Landscape
Cambridge, Mass.
December 1, 2006–January 15, 2007
This exhibition examines the Swiss landscape as both a design and cultural construct. Projects include the mapping of Switzerland as an urban entity, engineered landscapes, and contemporary landscape design. At Harvard University Graduate School of Design. Call 617/495-5453 or visit www.gsd.harvard.edu/swissla.

Urban America, 1930–1970
Providence
December 1, 2006–February 25, 2007
Between 1930 and 1970, economic and cultural factors contributed to demographic change in America's cities, leading to the diverse, culturally rich, economically stratified urban centers that we know today. This exhibition includes approximately 30 prints, drawings, and photographs by American artists who sought to understand and characterize this new urban scene through their art. At the RISD Museum of Art. Call 401/454-6500 or visit www.risd.edu.

National Design Triennial: Design Life Now
New York City
December 8, 2006–January 29, 2007
The third Triennial brings together the experimental designs and emerging ideas—including animation, new media, fashion, robotics, architecture, product, medical, and graphic design—at the center of American culture from 2003–2006. At the Cooper-Hewitt National Design Museum. For further information, call 212/849-8400 or visit www.ndm.si.edu.

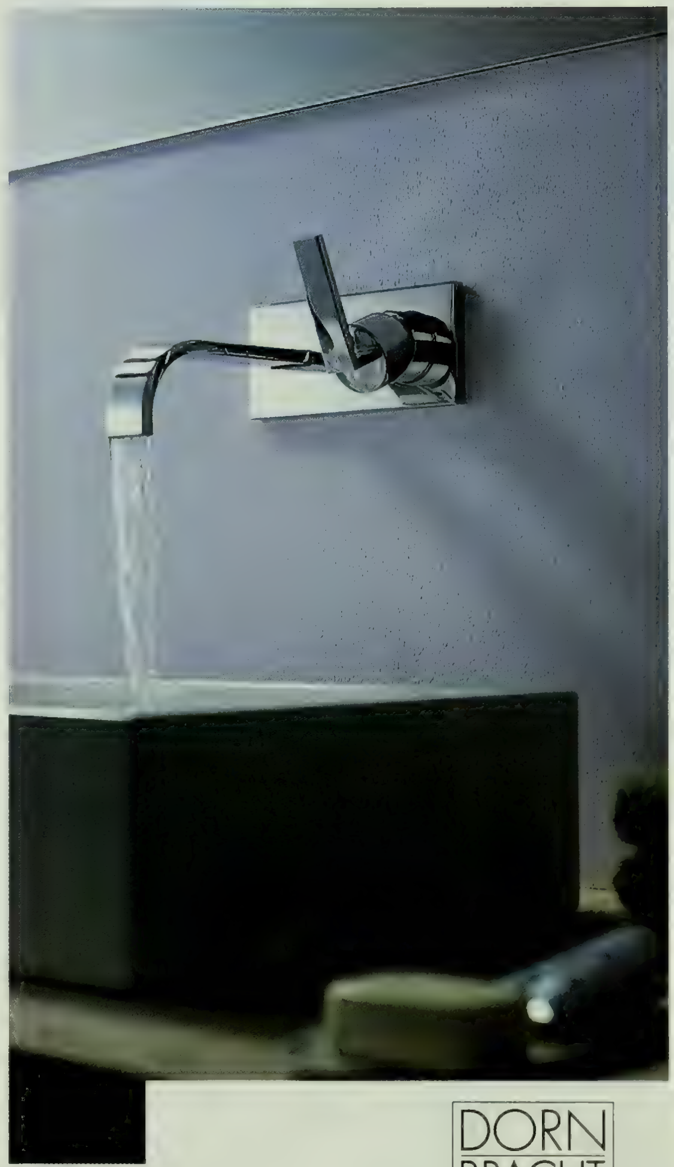
Some Assembly Required
Los Angeles
February 28–March 13, 2007
For this innovative new show, architects and home buyers unite to support a variety of modern modular dwellings that refute the commonly accepted image of "prefab" homes as cheap, cookie-cutter structures. This exhibition presents various approaches to prefab houses: those built with a kit and an instruction manual or the diminutive one-room version. At the Pacific Design Center. For more information, call 310/657-0800 or visit www.pacificdesigncenter.com.

Ongoing Exhibitions

P.A.N. (Progressive Architecture Network)
New York City
Through December 2, 2006
Curated by Winka Dubbeldam with Helene Furjan, this exhibition features the work of five "young" international architecture offices whose attitude toward the discipline are similar. The exhibition will contain models, as well as drawings and photographs, exemplifying the work of each office. At the Frederieke Taylor Gallery. To learn more, call 646/230-0992 or visit www.frederieketaylorgallery.com.

Architects Fired
Washington, D.C.
Through autumn 2006
Some of D.C.'s most innovative and celebrated architects turn their design sensibilities to the medium of clay. This exhibition is on view at Cross Mackenzie Ceramic Arts. Call 202/333-7970 or visit www.crossmackenzieceramicarts.com.

Project New Orleans
New Orleans
Through December 8, 2006
An exhibition of studies, responses, and solutions for rebuilding New



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Orleans from America's schools of architecture. At New Orleans African American Museum. For more information, call 504/566-1136 or visit www.project-neworleans.org.

Glass: Material Matters
Los Angeles
Through December 10, 2006
One of the first exhibitions of contemporary glass to explore the artistic use of glass in a diverse range of decorative objects, sculpture, conceptual art, and architecture. At the Los Angeles County Museum of Art. Call 323/857-6522 or visit www.lacma.org.

Time for Design
Richmond, Va.
Through December 10, 2006
This exhibition explores the evolution of design solutions and the intersection of various design disciplines through an in-depth look at intention, concept, process, outcome, and client relations. The installation includes graphic, fashion, interior, industrial design, and architecture and also features a series of short video interviews with the participants, Donna and Robert Dunay, professors in Virginia Tech's School of Architecture + Design, College of Architecture and Urban Studies. At the Visual Arts Center of Richmond. Visit www.vt.edu.

The Form of a Lake—
Stories of Finnish Design
Milan
Through December 10, 2006
Presenting forms inspired by lakes, snow, the northern lights, by light itself and the lack thereof, by wood and fire, and by the sound of skis cutting through the snow. Set up and arranged by Lino Sabattini, who has closely followed Nordic production over the years, the exhibition will feature pieces by Aalto, Heikkilä, Nurmesniemi, Tapiovaara, Kokko, Wirkkala, Sarpaneva and Puotila, among others. At Tingo Design Gallery. For more information, call 02 2906 7239 or visit www.tingo.it.

Seamless
New York City
Through December 15, 2006
An exhibition of exclusive works by world-renowned architect Zaha Hadid. At Phillips de Pury and Company's Chelsea headquarters. Call 212/940-1200 or visit www.phillipsdepury.com.

Toward Substantial Surfaces
Los Angeles
Through December 15, 2006
This exhibition of student work documents the research, design scenarios, and models produced for the 2006 spring Advanced Topics Studio led by Heather Roberge in the UCLA Department of Architecture and Urban Design. At Perloff Gallery, UCLA. Call 310/267-4704 or visit www.aud.ucla.edu.

RoTo Architects: Prairie View
Los Angeles
Through December 17, 2006
This exhibition of RoTo Architects' Architecture and Art Building of the Texas Prairie View A&M University features large-scale photographs of the building, a mural-size silk photo print, and a video documenting the construction and project completion in early 2006. At the Southern California Institute of Architecture (SCI-Arc). Call 213/613-2200 or visit www.sciarc.edu.

Hostile Terrain:
Reflections on Romania's
Industrial Landscape
Baltimore
November 1–December 22, 2006
An exhibition by photographer Paul Burke reveals how the transformation of Romania's social and political structure is reflected in the physical structures that make up its landscape. On view at the AIA Baltimore Gallery. For additional information, call 410/625-2585 or visit www.aiabalt.com.

Dates & Events

Carlos Garaicoa
Toronto
Through December 31, 2006
From a futuristic city made of rice-paper lamps to photographs capturing Havana's deteriorating cityscape, this exhibition features 15 recent works by one of Latin America's most high-profile artists, contemporary Cuban artist Carlos Garaicoa. At the Royal Ontario Museum. Call 416/586-8000 or visit www.rom.on.ca.

It's Time...
Los Angeles
Through December 31, 2006
The It's time... exhibition, created in conjunction with SCI-Arc architectural students, incorporates the use of biodegradable packing peanuts in a very provocative, sculptural, Gaudí-esque installation. The installation is meant to awaken viewers to the possibility of making green choices with everyday office and business products. At Denizen Design Gallery. For more information, visit www.denizendesigngallery.com.

Structure:
The Los Angeles Series
Los Angeles
Through January 5, 2007
An exhibition of national-award-winning artist Ted VanCleave. A selection of 16 of his new photographic images captures Los Angeles in a bold and colorful way that extends beyond representation to become brilliant, almost surreal abstraction. These highly stylized photographs juxtapose vibrant color and the geometry of L.A.'s architectural landscape. At ChopChop Salon/Gallery. Visit www.tedvancleave.com.

Skin and Bones: Parallel Practices in Fashion and Architecture
Los Angeles
Through January 8, 2007
This exhibition explores the common visual and intellectual principles that underlie both fashion and architecture. Both disciplines start with the body and expand on ideas of space and movement, serving as outward expressions of personal, political, and cultural identity. Presenting the work of international fashion designers and architects, the exhibition examines themes such as shelter, identity, tectonic strategies, creative process, and parallel stylistic tendencies, including deconstruction and minimalism. At the Museum of Contemporary Art. Call 213/621-1749 or visit www.moca.org.

The GenHome Project
Los Angeles
Through February 18, 2007
An exhibition exploring the integration of recent developments in information technologies and the natural sciences (especially genetics) into cutting-edge architecture. Interacting with one of the 20th-century's most renowned architectural experiments, the Schindler House, exhibition projects offer genetic modifications of the home's structure, interiors, and grounds. Among the many scientific methodologies that are referenced are nanotechnology, climatology, cell physiology, astronomy, robotics, and algorithms. At the MAK Center for Art Architecture. Call 323/651-1510 or visit www.MAKcenter.org.

OMA in Beijing: China Central Television Headquarters by Ole Scheeren and Rem Koolhaas
New York City
Through February 26, 2007
Scheduled to open for the Beijing Olympics in 2008, the complex comprises three buildings and a media park situated on a 20-hectare site east of Beijing's Forbidden City. The international partnership Office for Metropolitan Architecture (OMA) won the competition for its design in 2002, and the project broke ground in 2004, with OMA partner Ole Scheeren leading

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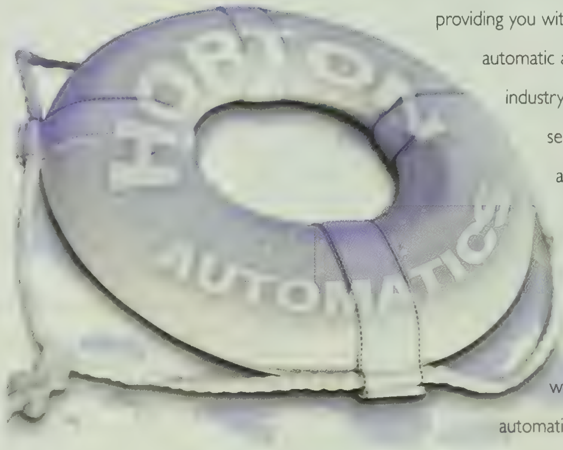

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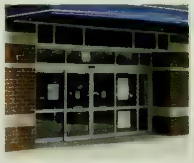
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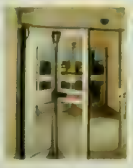
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its design and execution from Beijing. The exhibition explores the project through an array of graphics, renderings, and explanatory texts, as well as large- and small-scale models. A selection of architectural drawings from New York's Museum of Modern Art collection will situate the project as one of the most visionary built works in the history of modern architecture. At MoMA. For more information call 212/708-9400 or visit www.moma.org.

Modernism in American Silver: 20th-Century Design
Miami Beach, Fla.
Through March 25, 2007
This show charts the stylistic design history of modern American production silver while exploring the economic and cultural factors that influenced silver design, manufacture, and marketing across more than seven decades. At the Wolfsonian-FIU. For more information, call 305/535-1001 or visit www.wolfsonian.org.

The 2006 National Design Triennial: Design Life Now
New York City
December 8, 2006–July 29, 2007
Inaugurated in 2000, the Triennial seeks out and presents the most innovative American designs from the prior three years in a variety of fields, including product design, architecture, furniture, film, graphics, new technologies, animation, science, medicine, and fashion. On view throughout the museum campus will be the work of 87 designers and firms, ranging from established design leaders such as Apple Computer, architect Santiago Calatrava, and Nike to emerging designers like Joshua Davis, Jason Miller, and David Wiseman. At the Cooper-Hewitt National Design Museum. Call 212/849-8400 or visit www.ndm.si.edu.

Lectures, Conferences, and Symposia

Lecture: Jorge Silvetti
New York City
December 5, 2006
Jorge Silvetti will lecture as part of the Architectural League's fall 2006 program of lectures by eminent architects, engineers, and designers. At the Great Hall, Cooper Union. Call 212/753-1722 or visit www.archleague.org.

Ecobuild Federal: Sustainable, Green, and High-Performance Solutions for the Built Environment and AEC-ST Federal: Science and Technology for Architecture, Engineering, and Construction
Washington, D.C.
December 5–7, 2006
The exhibition is accompanied by a three-day conference for professionals in fields including architecture, construction, and engineering, as well as the federal government. At the Washington Convention Center. For more information, visit www.ecobuildfederal.com or www.aecstfederal.com.

Design Miami
Miami, Fla.
December 7–10, 2006
The international design forum brings together influential dealers, designers, collectors, curators, and critics in a weeklong show presented concurrently with the Art Basel fair in Basel, Switzerland. At The Moore Building in the Miami Design District. Call 305/572-0866 or visit www.designmiami.com.

ADA: Accessibility Provisions for Multifamily Residential Projects
Los Angeles
December 8, 2006
Presented by Isam Hasenin, chief building official for the City of San Diego, this seminar will focus on an update on state accessibility provisions; the latest federal and state accessibility provisions covering multifamily projects; special site accessibility challenges; the application of parking provisions; elevator requirements; many practical examples and case studies, and more. At AIA Los Angeles. Visit www.aialosangeles.org.

Construction of the World's Longest Tunnel
Washington, D.C.
December 12, 2006
Ambros Zgraggen, deputy director of communications at AlpTransit Gotthard, a subsidiary of Swiss Federal Railways, will discuss the project AlpTransit. In particular, he will focus on progress of the Gotthard Base Tunnel, a flat rail link for future travel through the Alps and, at 34 miles, the world's longest tunnel. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

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Dates & Events

Lecture: EccentriCity: Intriguing Characters in Washington's Architectural History
Washington, D.C.
December 14, 2006
In researching and writing the new edition of the *AIA Guide to the Architecture of Washington, D.C.* (Johns Hopkins University Press), Martin Moeller, senior vice president and curator at the National Building Museum, became fascinated by the many colorful characters, "including architects, clients, residents, and politicians," who helped shape the face of the nation's capital. In this lecture, he will talk about the intriguing people closely associated with noteworthy Washington buildings. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

10th Conference of the International Association for the Study of Traditional Environments (IASTE)
Bangkok, Thailand
December 15–18, 2006
"Hyper Traditions" is the theme of this year's conference. It will explore how globalization and new information technologies have contributed to the deterritorialization of tradition, challenging the idea of tradition as an authentic expression of a geographically specific, culturally homogenous, and coherent group of people. At Thammasat University. Call 510/642-6801 or visit www.arch.ced.berkeley.edu/research/iaste.

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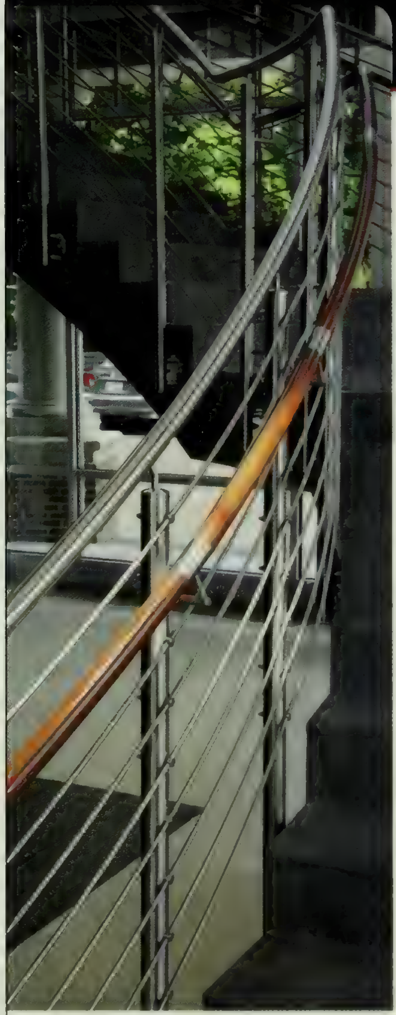
Global Place: Practice, Politics, and the Polis
Ann Arbor
January 4–6, 2007
Charles Correa, Shigeru Ban, Kenneth Frampton, Michael Sorkin, Marilyn Taylor, Liane Lefaivre, Lars Lerup, Daniel Solomon, Yung Ho Chang, Saskia Sassen, David Orr, Homi Bhabha, Jaime Lerner, Anne Spirn, John Thackara, and others will address intersections and contradictions of the global and the local, with a focus on the built environment. At the Taubman College of Architecture + Urban Planning, University of Michigan. Call 734/764-1300 or visit www.tcaup.umich.edu.

Lecture and Book Signing: L'Enfant's Legacy: Public Open Spaces in Washington, D.C.
Washington, D.C.
January 9, 2007
Washington is a dual city composed of the monuments and grand spaces of the federal core and the downtown and neighborhoods of the constituent city. Pierre L'Enfant intended them to support each other, relating them through a system of avenues and open spaces. Michael Bednar, senior professor of architecture at the University of Virginia , will discuss the parts of Washington tourists may not visit, the northwest quadrant and Capitol Hill, and how this system of democratic public open spaces has served residents during the two centuries since its inception. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

2007 Vincent J. Scully Prize: Witold Rybczynski
Washington, D.C.
January 17, 2007
Author, scholar, professor, and architect Witold Rybczynski has investigated and chronicled the fields of architecture and urban planning for more than 20 years. Renowned for its lucid prose and ability to translate complex concepts into laymen's terms, Rybczynski's work exposes diverse audiences to the impact of architecture, planning, and more on everyday life. The National Building Museum is recognizing Rybczynski's valued contributions to architecture and urban planning by presenting him with the 2007 Scully Prize. Following the ceremony, Rybczynski will give a lecture on "Demand-Side Urbanism" that will explore four paradigms of 20th-century American urbanism and how the design of American cities has been fundamentally impacted by market demand. At the National Building Museum. Call 202/272-2448 or visit www.nbm.org.

Spring 2007 Lecture Series: Design Goes Mainstream
Houston
January 17–February 7, 2007
In recent years, "design" has permeated the mainstream. Companies like Target, IKEA, Design

Design at its most functional.



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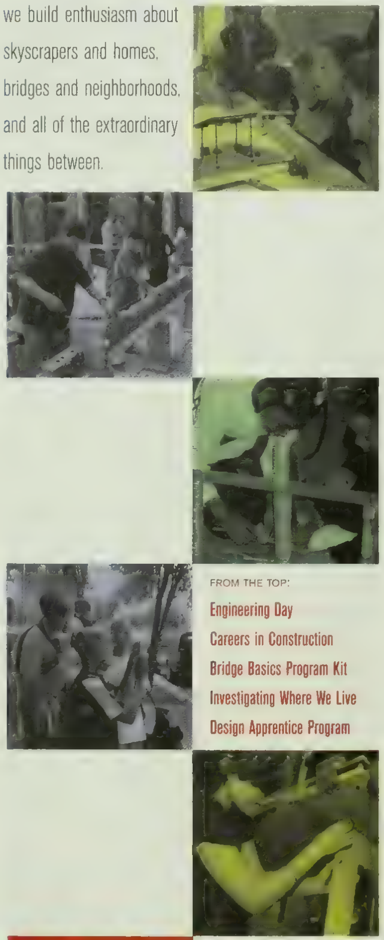
For decades the National Building Museum has inspired children and families to learn more about building, construction, design, and engineering. From our family festivals and our exhibitions, to our school programs and our curriculum kits, we build enthusiasm about skyscrapers and homes, bridges and neighborhoods, and all of the extraordinary things between.



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Glass Week 2007
Sarasota, Fla.
January 20–24, 2007
Emerging technologies in the Glass Industry featuring Michael Rogers and Don Reynolds, with one day focused on management and the other on industry issues and trends. At the Ritz Carlton Sarasota. Visit www.glassweek.

Competitions

The Gateway Project
Expression of Interest
Deadline: December 6, 2006
University College Dublin, Ireland's largest university, has launched a major international architecture competition for a new landmark development at the university's Belfield campus. The Gateway Project, comprising cultural, academic, leisure, and business facilities, represents the start of the implementation of a 15-year UCD Campus Development Plan. The University is inviting submissions from leading architecture firms from around the world. Visit www.ucd.ie.

2007 AIA Housing Awards:
Call for Entries
Submission deadline: December 15, 2006
The AIA Housing Awards recognize the best in housing design in the following categories: One and Two Family Custom Residences—custom and remodeled homes for specific clients; One and Two Family Production Homes—homes built for the speculative market; Multifamily Housing—both high- and low-density projects for public and private clients will be considered; and Special Housing—housing that meets the unique needs of other specialized housing types such as single-room-occupancy residences (SROs), independent living for the disabled, residential rehabilitation programs, domestic violence shelters, and other special housing. Call 202/626-7586 or visit www.aia.org/awp_housing.

The 2006–07 Kenneth F. Brown Asia Pacific Culture and Architecture Design Award
Registration deadline: December 10, 2006
Submission deadline: January 31, 2007
The program recognizes outstanding examples of contemporary architecture in the Asia Pacific region. For more information, call 808/956-3515 or visit www.arch.hawaii.edu.

International Design Competition for a Cultural Center in Nicosia, Cyprus
Credential submission deadline:
December 11, 2006
Design proposal submission deadline:
March 5, 2007
The Cultural Center will provide a focal point for the island's performing arts, showcasing national and international performances of music, dance, opera, musical theater, and the spoken word. The competition is open to all qualified architects. For more information, visit www.ccf.org.cy.

Bezalel Academy of Arts and Design, Jerusalem—International Architecture Competition
Registration: December 11, 2006–
January 11, 2007
Architects from around the world are invited to participate in the Bezalel Academy International Architecture competition to design the new campus in the center of Jerusalem. For additional information, visit www.bezalel-competition.org.il.

2007 Arthur Ross Awards for Excellence in the Classical Tradition
Deadline: December 15, 2006
In May, the Institute of Classical Architecture Classical America will hold its annual Arthur Ross Awards at New York's historic University Club. The ICA is now accepting nominations for consideration by this year's Ross Awards jury, to be chaired by Bunny Williams. For more information, visit www.classicist.org.

2007 Rudy Bruner Award
Application deadline: December 18, 2006
The Rudy Bruner Award for Urban Excellence seeks to discover special places that have solved urban problems with creative solutions. For more information about the award program, you can call 617/492-8401 or visit www.brunerfoundation.org.

Dates & Events

Rotch Traveling Scholarship

Application request deadline: December 27, 2006

The Rotch Traveling Scholarship was founded in 1883 with sufficient funds to ensure adequate income each year for young architects to pursue studies in foreign countries. For more information, visit www.rotchsholarship.org.

2007 International Bamboo Building Design Competition

Registration deadline: December 31, 2006
Submission deadline: January 15, 2007

Bamboo Technologies of Maui has launched the first International Design Competition for Structural Bamboo Buildings. Some of the winning entries will be chosen for manufacture by the world's premier builder of international-building-code-approved bamboo homes. The competition is open to architects, builders, designers, and students anywhere in the world. Visit www.bamboocompetition.com.

The Loeb Fellowship Call for Nominations and Applications

Deadline: January 3, 2007

Based at the Graduate School of Design, the program offers 10 annual post-professional awards for independent study at Harvard. For more information, visit www.gsd.harvard.edu/loebfell.

Living Steel International Architecture Competition

Deadline for application: January 12, 2007

Architectural firms of all sizes, scope, and geographic locations are encouraged to apply for this competition, which was launched to develop innovative approaches to meet sustainable housing needs, addressing the economic, environmental, and social aspirations of a growing world population. Three winning entries will be chosen by an independent jury composed of internationally respected architects Glenn Murcutt, Charles Correa, Andrew Ogorzalek, Jaime Lerner, James Berry, and Nicholas de Monchaux. For more information, visit www.livingsteel.org.

2007 SEGD Design Awards Program

Deadline: January 31, 2007

The Society for Environmental Graphic Design (SEGD) annual design competition honors the best in environmental graphic design. Projects include themed environments, way-finding and signage, place-making projects, mapping, public art, identity programs, architectural graphics, exhibits, and retail. Visit www.segd.org.

The James Beard Foundation Awards

Restaurant and graphics deadline: January 31, 2007

The James Beard Foundation Awards recognize outstanding achievement within the fine food and beverage industry. The Awards honor professionals including cookbook authors, chefs, restaurateurs, winemakers, journalists, broadcasters, as well as restaurant and graphic designers in the United States. This competition is open to architects and designers in North America for restaurant projects since 2004. For more information, visit www.jamesbeard.org.

2007 Aurora Awards

Deadline: March 9, 2007

Builders and architects who have demonstrated excellence and creativity when designing hurricane-resistant structures are invited to submit proposals to this design competition recognizing projects in the southeastern United States. Solutia, a manufacturer of polyvinyl butyral (PVB) interlayers for impact-resistant glass, is sponsoring a new category in the competition: The Safe & Secure Award will recognize builders, designers, architects, and other home-building professionals who incorporate—and meet or exceed code requirements for—impact-resistant windows and doors for safety, and who use other design elements that minimize the effects of hurricanes and other disasters on residential structures. Visit www.theauroras.com.

Project New Orleans Call for Submissions

Ongoing

Project New Orleans is seeking to compile a record of all architectural and planning proposals created for the post-Katrina rebuilding of New Orleans. Submissions are welcomed, both written and graphic, from the architectural to the regional, and from all engaged in thinking about the future of the city in physical terms. For more information, visit www.project-neworleans.org.

E-mail event and competition information two months in advance to elisabeth_broome@mcgraw-hill.com.

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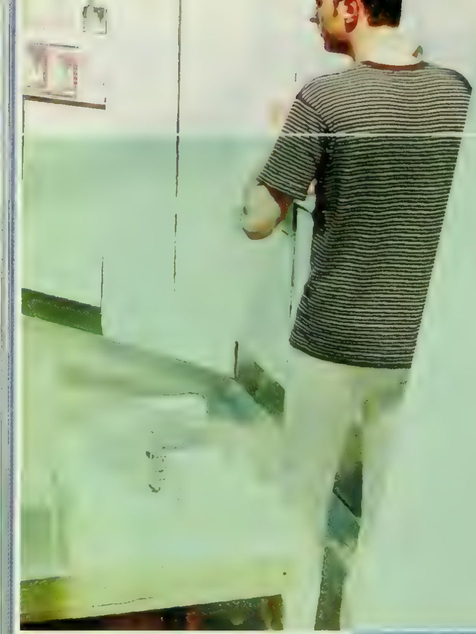

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The design studio lies at the core of architectural education. The experiences, habits and patterns found within the studio make up what we have termed, "studio culture." Design studio teaches critical thinking and creates an environment where students are taught to question all things in order to create better designs.

The experience of a design studio has also driven away good people or genuinely and unnecessarily insulted many in the formal process of learning. The AIAS believes we can improve the way students are educated which will lead to better designers.

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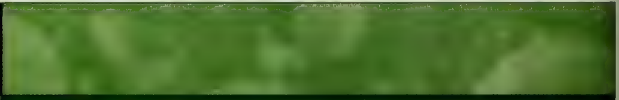

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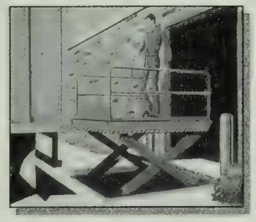

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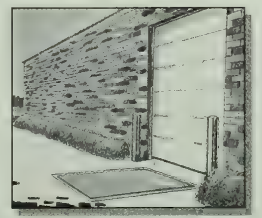

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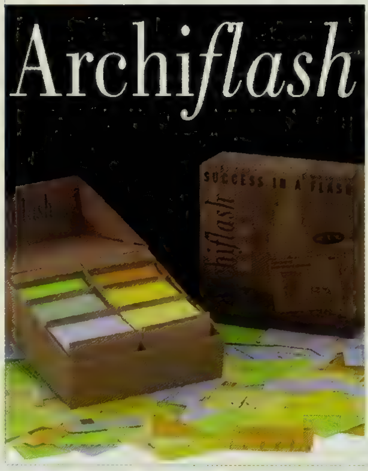

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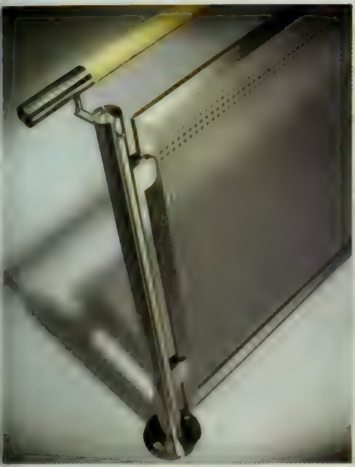

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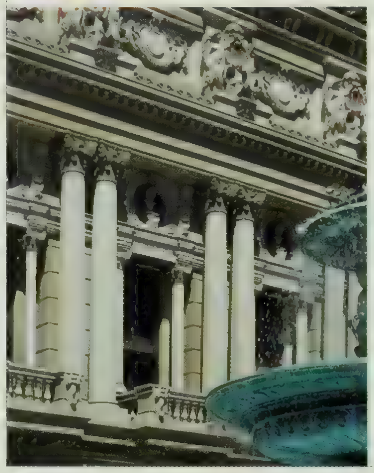

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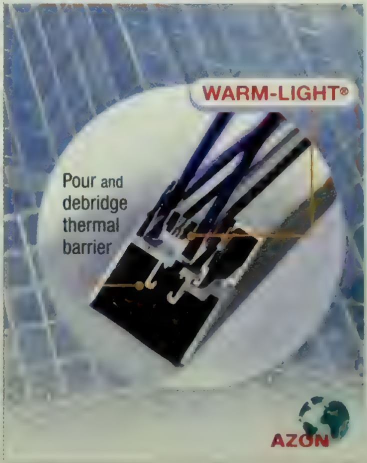
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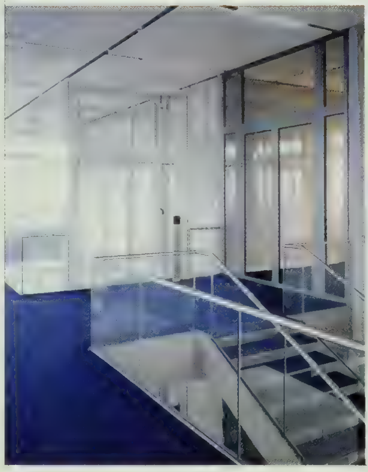

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www.fireglass.com

| Circle Reader Service #171

Stair Treads

Nathan Allan Glass Studios Inc.

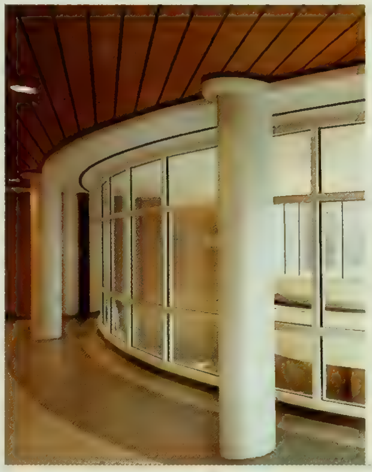
80 treads and 20 landings with Cast Glass Checkerplate (Diamondplate) texture. The walking surface has their exclusive Glass Sandpaper safety finish on two layers of 5/8-in. thick, tempered glass. Finished product is engineered and ASTM rated for coefficiency of friction testing. Client: Big D Construction Company Headquarters, Salt Lake City, UT. Designer: Gillies Stransky Brems Smith. Photo: Perrenoud Productions, Utah. Email bm@nathanallan.com

604-277-8533, ext. 225
www.nathanallan.com

| Circle Reader Service #169

Fire Rated Aluminum Framing

SAFTIFIRST



With SAFTIFIRST's SAFTIfire Frames, rated 45-min. to 2-hr., you can create the maximum barrier against fire and radiant heat while providing attractive framing that meets all the temperature requirements of the national building codes. Design flexibility of multiple forms makes for easy installation, creating a sleek, attractive profile.

888-653-333
www.safti.com

| Circle Reader Service #172

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Pilkington

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800-221-0444
www.pilkington.com

| Circle Reader Service #170

Contemporary Designer Levers

SARGENT Manufacturing Company

Studio Collection, Metro Elements by SARGENT®: 22 superbly stylized brass and stainless steel door levers, compatible with commercial-grade, mortise and tubular locks, access control locks, exit devices and master key systems. Aesthetically sophisticated door security solutions. Available in 13 finishes.

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www.studiocollection.com

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Fire-Rated Glass & Framing

Technical Glass Products

Technical Glass Products has been a national distributor of fire-rated glazing and framing materials since 1980. They are committed to providing reliable, rapid service and outstanding product options. Their knowledgeable staff can assist you in determining which product is right for your application. Contact Technical Glass Products at 1-800-426-0279 or www.fireglass.com.

800-426-0279
www.fireglass.com

| Circle Reader Service #174

Stainless Steel Floor System

Gage Corporation, Inc.

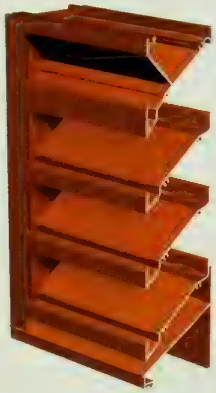
The Gage Stainless Steel Floor System is a durable, high-tech flooring solution designed in Italy for purity of form and ease of installation. The embossed stainless steel finish has been specifically designed to prevent traffic wear and is virtually indestructible. "The system is the solution."

866-855-4243

| Circle Reader Service #177

Four-Inch Drainable Louvers

The Airolite Company, LLC



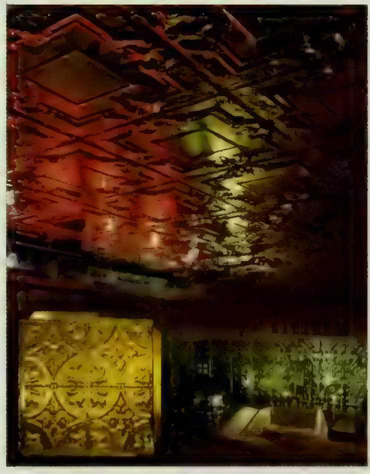
Airolite continues to expand its louver line by offering Louver Type K6744, a drainable louver that offers outstanding resistance to water penetration. Featuring a four-inch frame depth with 35 degree drainable blades, Louver Type K6744 offers 56% free area without compromising water penetration performance. For more than 85 years, Airolite has served as the innovative leader in the design and manufacture of architectural louvers, grilles, screens and sun controls.

740-373-7676
www.airolite.com

| Circle Reader Service #175

Authentic Tin Products

The American Tin Ceiling Co.



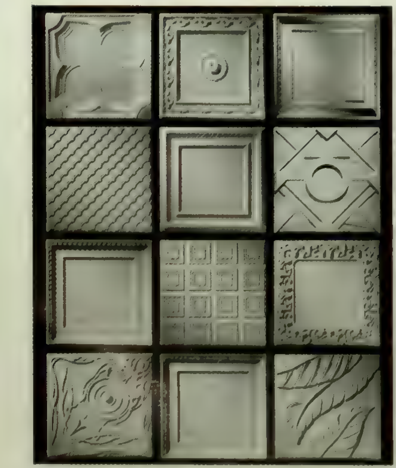
One of the largest manufacturers of authentic tin ceilings panels, offering over 30 of the finest embossment patterns and over 50 high quality powder coat finishes. Exclusive distributors of the innovative SnapLock™ and 3D Dropin tin ceiling panels. Eight designers provide free phone consultation six days a week. Orders shipped direct worldwide. Fax number 941-359-8776

888-231-7500
www.americantinceilings.com

| Circle Reader Service #178

Ornamental Plaster Ceiling Tiles

Above View Mfg., By Tiles, Inc.



Above View ornamental plaster ceiling tiles are fabricated from a non-toxic, non-combustible, proprietary composition. They drop into any standard 15/16-in. T-Bar grid system. There are more than 50 standard designs, custom design work, and 1,300 custom colors and faux finishes available upon request.

414-744-7118
www.aboveview.com

| Circle Reader Service #176

Flooring

Viva Ceramica

"All of us at Viva, have always held to the idea of creating for ourselves rather than for the market. Today, when everything seems to float over the surface of fashion, of dreams, and all is short-lived, we have added to our philosophy the idea of not weighing down this world with useless products, copies of things that have already been seen, interchangeable repetitions of objects that are born today and die out with fashion. IRIDIUM is created to be exclusive, for those who understand and know how to appreciate the value of things that last and the work and passion that is part and parcel of our ceramic workshop".

www.cerviva.it

| Circle Reader Service #179

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deidre_allen@McGraw-Hill.com

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CopperCraft

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| Circle Reader Service #183

Custom Model Home Signs

Custom Home Accessories, Inc.

Carry the style of your community's address plaques and mailboxes over to your model homes. Custom Home Accessories' custom signs are an elegant way to present your model home's features. Constructed of durable cast aluminum, their plaques and posts are available in a wide variety of classic styles to match your community's needs.

800-265-0041
www.mailboxes.info

| Circle Reader Service #181

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Walker Display Incorporated

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www.walkerdisplay.com

| Circle Reader Service #184

Canopies & Walkway Covers

Mapes Industries

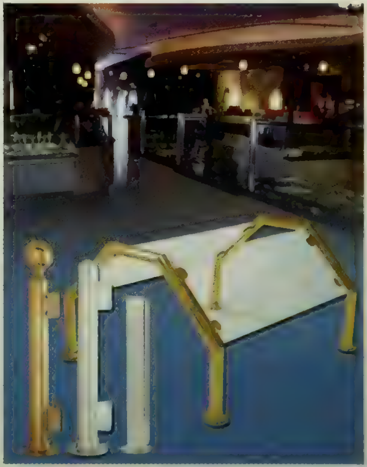
Mapes Industries manufactures a complete line of hanger rod canopies and walkway covers. These pre-engineered canopies incorporate roll formed and extruded roof decking, flat or corrugated, with projections up to 12-ft. With multiple fascia profiles, the canopies are a cost effective alternative to jobsite built designs. Custom colors are also available. Specially designed brackets allow these canopies to be attached to any wall surface including EIFS, metal buildings and CMU. For more information, please call 800-228-2391 or visit www.mapes.com.

800-228-2391
www.mapes.com

| Circle Reader Service #182

Hospitality & Service Hardware

C.R. Laurence Co., Inc.



CRL's new HS07 Hospitality and Service Hardware Catalog offers hundreds of Partitions, Barrier, and Sneeze Guard Components to complement any interior décor. Stock items ship same day, and their custom fabricated items can be Quick-Fab'd in as little as 5 to 7 working days. Visit them online at crlaurence.com. Fax number 800-587-7501.

800-421-6144
crlaurence.com

| Circle Reader Service #185

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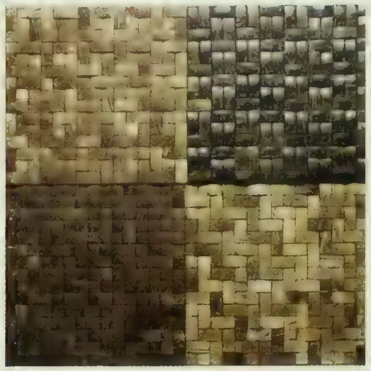
Architectural Surfaces

Solistone, Inc.



SOLI offers one-of-a-kind architectural surfaces for traditional and contemporary applications. From metal to marble, granite to glass, SOLI tiles bring elevated design to floors and walls, indoors and out. They also produce a variety of unique porphyry, cobblestones and pavers for decorative pathways and atriums. Their uncompromised commitment to quality combined with an unparalleled aesthetic makes SOLI the true destination for distinctive surfaces. To view their extensive collection of innovative tile and natural stones, visit their web site. Email info@soliusa.com

800-246-2156; Los Angeles 310-659-6626;
Maimi 305-573-4860
www.soliusa.com

| Circle Reader Service #186

Deep Seating Club Chair

Modern Outdoor Inc.

New to the Etra line is this deep seating club chair. Designed for comfort and style, the deep seating line also includes a sofa and ottoman. They offer four complete lines of high-style, clean-lined environmentally conscious outdoor furniture. The Modern Outdoor Collections are commercial grade products designed for use in all manner of public spaces—restaurants, hospitality, parks, resorts, hotels...yet have an aesthetic that is perfect for a residential client's backyard setting. View the entirety of their collection online.

818-785-0171
www.modernoutdoor.com

| Circle Reader Service #189

Display Shelves

Gyford Productions

Introducing the new SOLAR ECLIPSE shelving display. This one-of-a-kind, elegant—yet sturdy—shelving unit will add a sense of artistry to any space. The system is made from Gyford's stock aluminum components and combined with custom designed plexiglass shelves. Gyford can ship in a matter of days and customize to infinite possibilities. Combine the SOLAR ECLIPSE shelves with their "Archer" shelves in your next design project and make a statement. Email graphics@standoffsystems.com

775-829-7272

| Circle Reader Service #187

Mobile Storage System

Aurora by Richards-Wilcox

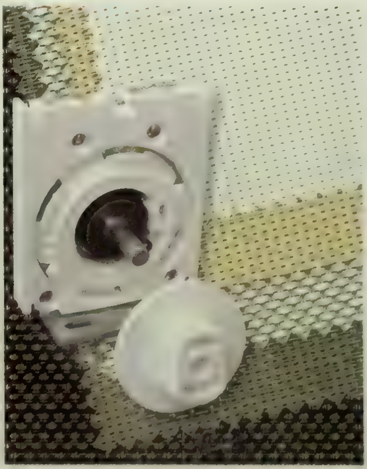
The new Aurora Tempo provides unsurpassed value in a mobile storage system. With standard units and options, Richards-Wilcox is able to pass along big benefits in a system that sets a whole new pace for storage. Aurora Tempo features Quik-Ship times, easy installation with preassembled carriages, and smooth operation for even heavy loads. Use Aurora Tempo for general storage, filing or library applications. For more information contact Aurora Products toll free at 800-877-8456.

800-877-8456
www.aurorastorage.com

| Circle Reader Service #190

Solar Shade System

MechoShade



Mecho®/5 with EcoVeil™ is the first solar shade system to receive "Cradle-to-Cradle™" Silver Certification from MBDC. It is a commercial quality system which has a 25 year project lifetime limited warranty, is fully accessorized and includes Mecho-Shade's patented SnapLoc® Spline technology. EcoVeil is a revolutionary, eco-effective solar shade cloth that can be reclaimed and recycled. For more information visit: www.mechoshade.com/SilverC2C.

718-729-2020
www.mbdc.com

| Circle Reader Service #188

Saunas

Finlandia Sauna Products, Inc.

Finlandia Sauna has manufactured exclusive and authentic saunas since 1964. Finlandia offers precut sauna packages and modular sauna rooms as an affordable luxury that can be included in any remodel or new construction. The company markets four all-clear western softwoods and is the only manufacturer to use 1-in. by 4-in. paneling, instead of the cheaper 1/2-in. by 4-in. material used by others. Finlandia's packages include all room parts, a choice of a Finnish made electric heater, a prehung door with choice of glass, and all necessary accessories.

800-354-3342
www.finlandiasauna.com

| Circle Reader Service #191

Steam Shower

Sculptured Homes

Sculptured Homes manufactures the WetSpa, a contemporary alternative to a custom-built steam shower, in one complete package. The package includes a 3-1/4-in. Corian floor system that can be recessed for barrier free entry, 3/8-in. tempered glass walls that can be custom color-coated for installation in a corner or alcove, pre-plumbed wet-wall, choice of shower fittings and optional steam, fiber-optic lighting, marine-grade stereo speaker and seating. Standard sizes facilitate easy specification for remodels and new constructions.

248-723-5230
www.wetspas.com

| Circle Reader Service #192

Architectural Ceiling Fans & Lighting

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Balanced design that is light and airy. Moving sculpture... The San Francisco ceiling fan is a GOOD DESIGN Award winner by Mark Gajewski. Whisper quiet, powerful, reliable and beautifully made. Also available without a light kit. Lifetime warranty. Buy great fan and lighting designs on G-Squared Art's website or call Monday through Friday from 7am to 5pm PST.

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www.g2art.com

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Basin & Matching Toilet

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www.neo-metro.com

| Circle Reader Service #193

Sleek & Contemporary Pendants

W2 Architectural Lighting

Bridging function and design, W2 ARCHITECTURAL LIGHTING introduces "Architectural Elements," contemporary pendants crafted with a sleek design and scale for large, challenging spaces. W2 ARCHITECTURAL LIGHTING, a new division of W.A.C. Lighting, offers specification grade products for commercial, hospitality and retail applications. Achieving a perfect balance of color and light, the pendants are designed with glossy, cased Opal glass shades to spread light evenly and minimize glare.

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| Circle Reader Service #196

Remote Emergency Lighting Fixtures

Concealite

Concealite's new "H" Series Remote Emergency Lighting fixture provides an excellent solution to the challenge associated with illuminating long exterior and interior paths of egress in an emergency. The H Series fixture is available as a single or double head in 20, 35, 50, 75 or 100 watts. The H Series fixture is rated for indoor, outdoor, and wet location applications. For more information on the H Series, please contact Concealite at 605-542-4444 or send an email to info@concealite.com. Email info@concealite.com.

605-542-4444
www.concealite.com

| Circle Reader Service #194

European Cobblestone

Eurocobble

An updated catalog features authentic European cobblestone preassembled in modular form. Modules in square, fan, concentric ring, and custom formats arrive at the job site ready for a quick and easy installation. Pedestrian or vehicular application. Eurocobble® has supplied the design community with traditional and customized paving solutions for over 20 years. Call toll free or visit the Web site.

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| Circle Reader Service #197

Over half of the world's population are urban dwellers. The global urban population increases by 1.25 million people every week. How can the cities of the 21st century cope with this development?

Urban_Trans_Formation

Challenging the 21st century

Holcim Forum for Sustainable Construction Shanghai, China

April 19 – 21, 2007 Tongji University

The Holcim Forum for Sustainable Construction 2007 is a two-day conference bringing together international experts from architecture, civil engineering, urban planning, natural and social sciences as well as representatives from business, politics, adminstration and civil society. This global platform will advance concepts for Urban_Trans_Formation towards tangible benefits to diverse communities and offer the possibility for individual discussions and networking, stimulated by keynote speeches, workshops, panel discussions and an optional full-day case study tour in the Shanghai region.

Program details and registration: **www.holcimforum.org**

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Brenda Boardman, UK
Yung Ho Chang, China/USA
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Fernando Diez, Argentina
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Enrique Peñalosa, Colombia
Rahul Mehrotra, India/USA
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Please visit: http://www.aap.cornell.edu/aap/arch/faculty/chair-search.cfm

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archrecord.construction.com

THE CITY UNIVERSITY OF NEW YORK:
JOB POSTING #2
NEW YORK CITY
COLLEGE OF TECHNOLOGY

The Architectural Technology Department has openings for two full-time faculty members as Assistant Professors. This program, the only one of its kind in the CUNY system, trains students in design, working drawings and in the construction aspects of a building project. The curriculum history, structures, architectural office practice, architectural environmental systems, and numerous CADD based courses. The newly approved Btech degree has an emphasis on restoration and renovation of existing New York City buildings. Our full time faculty is made up of registered architects who are active in the field. The department has been involved in numerous actual projects, some of which are now under construction. Our graduates are in high demand and our faculty and students have received recognition and various professional awards.Title: Assistant Professor (Position #2). Payroll Title: Assistant Professor/Architectural Technology Department. Position Type: Teaching Salary: Commensurate with education and experience: $48,993-65,388. Position Description and Duties: Successful candidate must have a well-rounded architectural background and will also serve as the key person for the continued integration and expansion of computer based technology within the department and the curriculum. Duties to include teaching, academic advisement, committee and departmental assignments. Qualification requirements: The candidate must possess a Bachelor's Degree in Architecture, a Masters and architectural registration in New York State. Five years experience in an architectural office working in a responsible position is required. Candidate must be familiar with various aspects of architectural office practice and the development of working drawings. Proficiency and experience teaching AutoCAD, AutoCAD Viz, 3D Studio, Maya, Photoshop and Illustrator is highly desirable. The successful applicant will be responsible for creating computer coursework, updating curriculum for AutoCAD and other programs. Computer animation experience is also highly desirable. Experience in the development of curriculum is a definite plus. For full details go to: www.citytech.cuny.edu Mail a cover letter and resume to: Michelle Harris, Executive Director, Instructional Staff Relations, New York City College of Technology. 300 Jay Street, N321, Brooklyn, NY 11201 To send electronically: isr@citytech.cuny.edu

DEAN
COLLEGE OF ARCHITECTURE AND PLANNING
BALL STATE UNIVERSITY MUNCIE, INDIANA

Ball State University invites nominations and applications for the Dean of the College of Architecture and Planning, the only such publicly supported college in Indiana. The dean leads a talented faculty of approximately 60 in the Departments of Architecture, Landscape Architecture, and Urban Planning. The college also hosts five centers and institutes, design centers in Indianapolis and Muncie, and a program in historic preservation. The college offers baccalaureate and master's degrees to over 700 students. For detailed information, visit www.bsu.edu and www.bsu.edu/cap. The college seeks a dean who has attained distinction in the design professions and who is an outstanding leader with a strong vision that builds on the historic strengths of the college in environmental sustainability and community-based projects. The dean will promote the national visibility of college programs, foster interdisciplinarity and creative collaborations, and manage well the college's human, fiscal, and physical resources. The dean will lead the college in developing immersive learning experiences for students, in creating an entrepreneurial environment in which innovation will flourish, and in deepening the engagement of faculty and students with community partners. In addition, the dean will cultivate and maintain relationships with external constituents, including benefactors and alumni. Minimum qualifications: master's degree and credentials that will merit a tenured faculty appointment as full professor in one of the departments in the college; demonstrated record of success in scholarly productivity and/or professional practice; demonstrated success in developing external funding or fundraising; successful accomplishments in teaching and administration; demonstrated ability to communicate clearly and effectively; demonstrated commitment to diversity. Preferred qualifications: doctoral degree; demonstrated success in academic administration; outstanding record in professional practice; demonstrated commitment to the teacher-scholar model; demonstrated commitment to the interdisciplinarity of the design professions. Applicants and nominees should send a letter of application, curriculum vitae, and the contact information for five references to: Dr. Michael A. Maggiotto, Chairperson, Selection Committee for Dean of Architecture and Planning, Office of the Provost, Ball State University, Muncie, IN 47306. Review of applications will begin January 8, 2007, and will continue until the position is filled. The position is available July 1, 2007. Ball State University is an equal opportunity, affirmative action employer and is strongly and actively committed to diversity within its community.

THE CITY UNIVERSITY OF NEW YORK: JOB POSTING #1 NEW YORK CITY COLLEGE OF TECHNOLOGY

The Architectural Technology Department has openings for two full-time faculty members as Assistant Professors. This program, the only one of its kind in the CUNY system, trains students in design, working drawings and in the construction aspects of a building project. The curriculum includes a series of design courses, site planning, materials, architectural history, structures, architectural office practice, architectural environmental systems, and numerous CADD based courses. The newly approved Btech degree has an emphasis on restoration and renovation of existing New York City buildings. Our full time faculty is made up of registered architects who are active in the field. The department has been involved in numerous actual projects, some of which are now under construction. Our graduates are in high demand and our faculty and students have received recognition and various professional awards. Title: Assistant Professor- (Position #1) Payroll Title: Assistant Professor/Architectural Technology Department. Position Type: Teaching. Salary: Commensurate with education and experience: $48,993-65,388 Position Description and Duties: Responsible for teaching a range of architectural courses, conducting academic advisement, and research. Committee and departmental participation is required, as well as professional development activities. Qualification Requirements: The candidate must have a Masters degree and architectural registration in New York State. A minimum of five years architectural office experience in a responsible position is a must, as well as expertise in two and three-dimensional CADD. Prior architectural teaching experience at a college level is preferred, as well as excellent communication and graphic skills. Candidate should have the expertise to teach construction documents, architectural history, and materials in architecture, site planning, design and structures. Experience in curriculum development, instructional technology and innovative pedagogy is desirable. For full details go to: www.citytech.cuny.edu Mail a cover letter and resume to: Michelle Harris, Executive Director, Instructional Staff Relations, New York City College of Technology, 300 Jay Street, N321, Brooklyn, NY 11201. To send electronically: isr@citytech.cuny.edu

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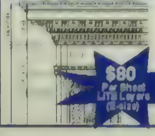

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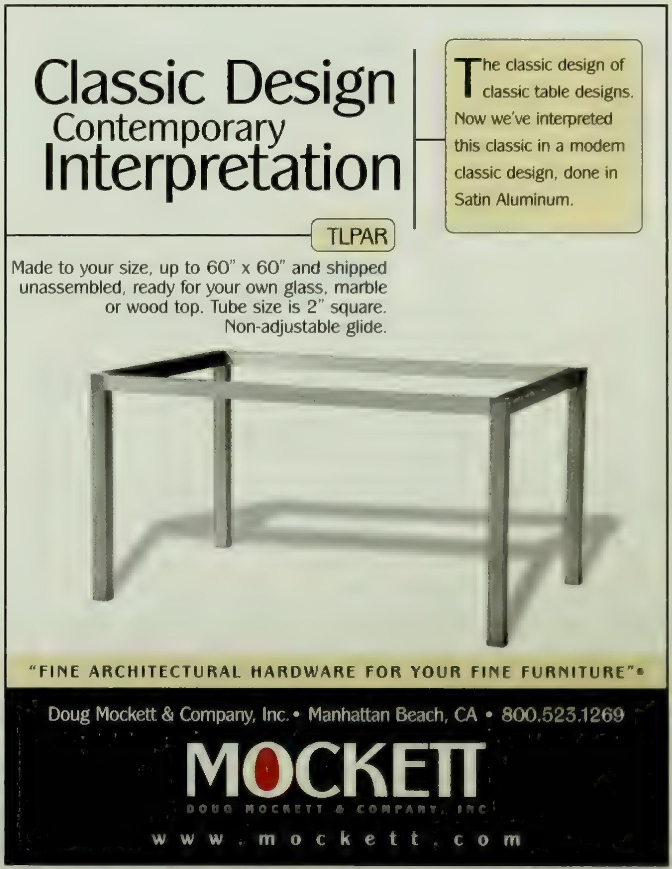
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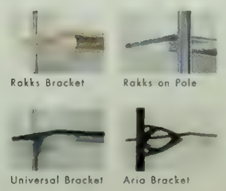

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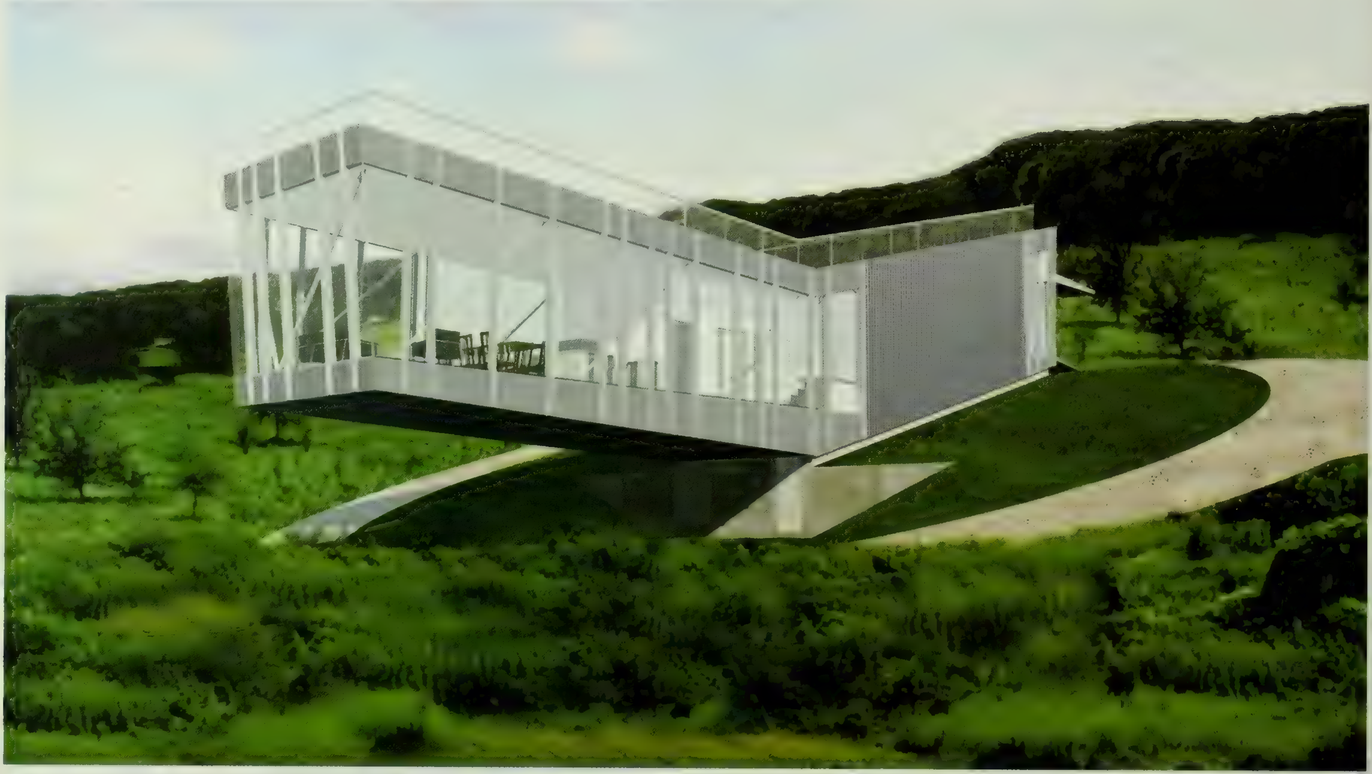

A tabula rasa in the Berkshires

ARCHITECTURAL RECORD HOUSES
Mid-April 1987

A Boston architect razes his own house, which was once on the cover of RECORD (above), and plans a new residence (top) with an updated aesthetic.

On the night of October 30, 2006, a Caterpillar excavator turned the Schwartz/Fiekowsky house into one of the great satisfactions of modern architecture—a tabula rasa. The demolition came by order of the architect-owner Warren Schwartz of Schwartz/Silver, whose quirky family getaway in the Berkshires was the cover story for Record Houses in 1987 [RECORD, Mid-April 1987, page 114]. So why tear down your own award-winning house? After only 20 years, the aluminum "eyebrows" over the windows and doors, the perforated-metal pyramid, and the Lady Liberty-esque rain heads dated the architecture, and rendered it simply unfashionable (read Postmodern).

Inspired by Vincenzo Scamozzi's 16th-century Villa Pisani, in Vicenza; an elephant; the Statue of Liberty; and transformer toys, by 2006 the house had become an aesthetic white elephant. While most architects would refuse to demolish their work (their houses often double as the chronicle of their creative evolution), Schwartz opted to erase and start anew. He is replacing the house with a 90-foot-long Modernist structure, 45 feet of which cantilever from the sloped site. He intends this glass-and-metal house to be more durable than its predecessor, both physically and aesthetically. Schwartz and his wife, Sheila Fiekowsky, plan to occupy their new getaway by July 4, 2007. *John Gendall*

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